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Prepared for

McKesson Corporation
One Post Street
San Francisco, California 94104

SUPPLEMENTAL FEASIBILITY STUDY

Former McKesson Chemical Company

**9005 Sorensen Avenue
Santa Fe Springs, California**

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

475 14th Street, Suite 400
Oakland, California 94612

Project Number HA0620

22 February 2007

MCK0066970

MCKESSON

22 February 2007

Lori Parnass, Project Manager
California Environmental Protection Agency
Department of Toxic Substances Control, Region 3
1011 North Grandview Avenue
Glendale, California 91201

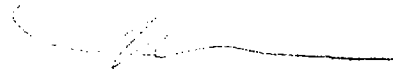
Subject: Supplemental Feasibility Study
Former McKesson Chemical Facility
9005 Sorensen Avenue
Santa Fe Springs, California 90670

Dear Ms. Parnass:

This letter transmits the subject document that was prepared following our discussion at the meeting of October 19, 2006. Following your approval of the Supplemental Feasibility Study, we will prepare and submit a Remedial Action Plan for the selected source remediation technology.

If you have any questions or require further information, please do not hesitate to contact me at (608) 848-4134.

Sincerely,



Jean A. Mescher

Enclosures

cc: John Edgecomb, Esq.

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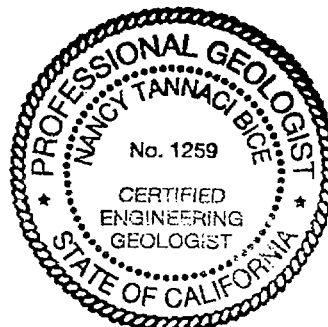
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A handwritten signature in cursive script, appearing to read "Lisa Van Tassell".

Lisa Van Tassell, P.E.
Senior Engineer



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Nancy T. Bice, P.G., C.E.G.
Principal Engineering Geologist

MCK0066972

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1 INTRODUCTION

This Supplemental Feasibility Study (Supplemental FS) has been prepared by Geosyntec Consultants, Inc. (Geosyntec), on behalf of McKesson Corporation (McKesson) for the former McKesson Chemical Company facility located at 9005 Sorensen Avenue, Santa Fe Springs, California (Site, Figure 1). The Supplemental FS was developed to evaluate remedial technologies designed to reduce the mass of VOCs in fine-grained soil beneath the former solvent aboveground storage tank (AST) area.

A Feasibility Study for On-Site Soil Remediation (FS) (HLA, 1992) addressing the initial remediation of chemicals identified in soil was previously submitted to the Department of Toxic Substances Control (DTSC) on 30 October 1992. The objective of the initial on-Site soil remediation was to reduce concentrations of VOCs in soil to levels that, when partitioned to groundwater, result in groundwater VOC concentrations that are protective of groundwater quality. Based on this objective, soil vapor extraction (SVE) was selected as the most technically feasible and potentially applicable remedy for the Site. The DTSC approved implementation of the SVE program in 1993 and it is currently in operation at the Site.

While mass removal through SVE has been significant, remaining concentrations of VOCs in fine-grained soils present an ongoing source of VOCs to groundwater. Continued SVE will likely achieve additional reductions in VOC mass; however, the mass removal rate has declined significantly and will continue to be relatively low. If no modifications to the current remediation program are made, cleanup of VOCs from soil at the Site will take many decades.

This Supplemental FS was prepared to evaluate additional technologies that could be implemented to accelerate mass removal from the fine-grained soils beneath the former solvent AST area.

1.1 Purpose and Scope

The FS submitted in 1992 evaluated technologies for the remediation of soil and selected SVE as the recommended alternative. The SVE program was implemented in 1994 and has been successful in removing VOC mass from the coarse-grained soil beneath the former solvent AST area. However, due to the presence of residual levels of VOCs in fine-grained soil beneath the former solvent AST area, the progress of the

soil remedy is slower than anticipated. Remediation of VOCs in soil and groundwater at the Site is limited by chemical sorption to and desorption from fine-grained soil. Sorption effects are stronger in fine-grained soils with higher clay content. Desorption rates are affected by concentration gradients, such that chemicals will desorb or partition from soil (both in the vadose zone and in the saturated zones) more slowly as the concentrations are reduced in the air space surrounding the soil particles or reduced in the groundwater surrounding the soil particles.

SVE alone is expected to require decades to remove these VOCs due to the sorption/desorption effects discussed above and because little airflow is likely to be occurring within these fine-grained soils. Additional technologies have been developed since the approval of the FS that could prove more successful in removing these residual VOCs.

This Supplemental FS was prepared to evaluate additional technologies for accelerated mass removal from fine-grained soil beneath the solvent AST area. This Supplemental FS presents a summary of background information for the Site, discussion of the screening of appropriate technologies, development and evaluation of remedial alternatives, and a recommendation of the most appropriate remedial alternative.

2 BACKGROUND

The following sections discuss prior Site occupancy and use history, geology and hydrogeology, a summary of remedial investigations to date, and a summary of soil remediation efforts to date.

2.1 Site Description and Use History

The Site is located in an industrial area in the City of Santa Fe Springs, California (Figure 1). The Site consists of approximately 4.3 acres, a vacant 11,000-square foot concrete masonry building, a portion of which is used for remediation equipment, a vacant 150-square-foot former yard office, and railroad spurs on the north and west sides of the property (Figure 2). The Site is partially paved with asphalt and concrete, and is surrounded by a 6-foot high chain link fence, except for a concrete block wall along the southern boundary.

According to historical aerial photographs, the Site was undeveloped before 1975, although the railroad tracks along the north boundary of the Site were present in 1927. McKesson Chemical Company, a former division of McKesson, leased the Site and operated a bulk chemical repackaging facility from 1976 to 1986. Chemicals were stored in both aboveground and underground storage tanks (ASTs and USTs, respectively) and piped to packaging areas. Bulk chemicals were transported to and from the facility by truck and rail.

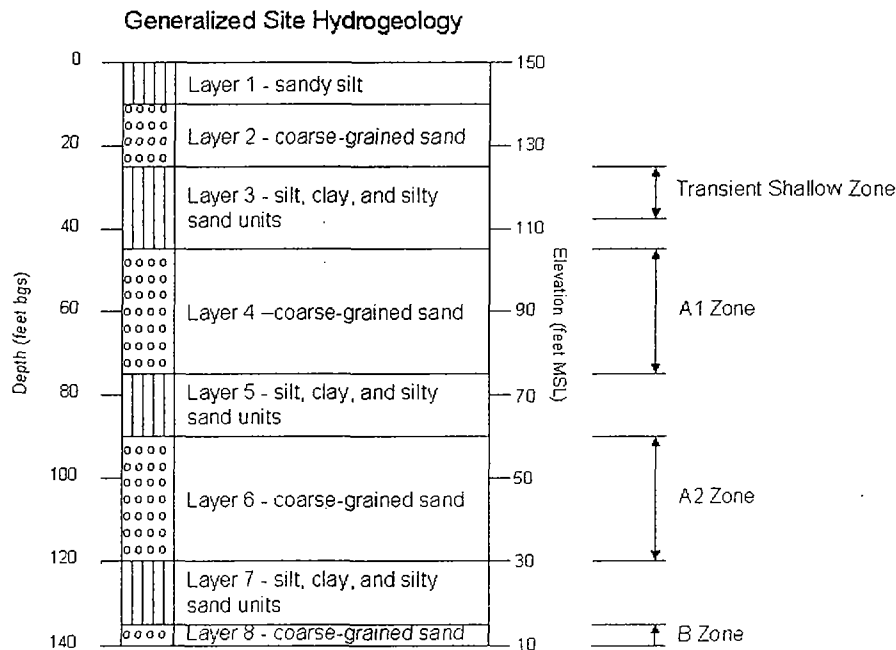
Operations at the facility ceased in November 1986 as a result of McKesson's sale of substantially all of the assets of its chemical company. At the time of closure, all USTs and ASTs were emptied. McKesson continued to lease the property in order to perform the investigation and remediation activities, and purchased the property in 2006.

The Site has been largely vacant since operations ceased in 1986, with the exception of the period from August 2003 to September 2004, when a portion of the Site was subleased to an asphalt and concrete recycling company. All tanks have been removed, and remediation/removal of VOCs from soil and groundwater is currently ongoing. The Site is fully fenced and locked.

2.2 Geology and Hydrogeology

The Site is located on the Santa Fe Springs Plain, a gently rolling physiographic feature within the Los Angeles Coastal Plain (Coastal Plain), south of the Puente Hills and east of the San Gabriel River. The Coastal Plain is underlain by a sequence of alluvial sediments near the foothills and interfingering marine sediments that thicken toward the Pacific Ocean. In the Site vicinity, the upper 50 feet of sediments consist of fluvial deposits of clay, silt, sand, and gravel, which are characterized as the Lakewood Formation (CDWR, 1961). Underlying the Lakewood Formation are deposits of silt, silty sand, sand, and gravel of the San Pedro Formation, which range in thickness from 700 to 800 feet (CDWR, 1961).

The geology underlying the Site and vicinity consists of a sequence of clay, silt, silty sand, and sand layers to a depth of at least 140 feet below ground surface (bgs). The stratigraphic layers in the upper 140 feet of the Site and vicinity are fairly consistent and can be generalized as shown below.



Groundwater at the Site and vicinity has been identified in three zones to a depth of 140 feet bgs: the shallow zone, the A zone (subdivided into the A₁ and A₂ zones), and the B zone. The three zones, which are illustrated above, are characterized by the following depth intervals beneath the Site:

- The shallow zone is a silty sand unit that is present between depths of approximately 25 and 35 feet bgs;
- The A zone, which is comprised of the A₁ zone, a sand unit present between depths of approximately 45 and 75 feet and the A₂ zone, a sand unit present between depths of approximately 90 and 120 feet bgs; and
- The B zone is a sand unit that is present at depths greater than 135 feet bgs.

With the exception of one shallow well at the northeast corner of the Site, groundwater is present in a transient state in the shallow groundwater zone only after periods of significant rainfall. When present, groundwater in the shallow zone ranges in elevation from 112 to 116 feet above mean sea level (msl). Groundwater in the A₁ zone ranges in elevation from its current level of approximately 95 feet above msl to past maximum elevations of 120 feet above msl. Groundwater elevations in the A₂ zone are similar to those in the A₁ zone. Since 1991, the groundwater flow direction generally has been observed to be toward the southwest in the A₁, A₂, and B zones.

2.3 Distribution of VOCs in Soil

Extensive characterization has been performed at the Site since the late 1980s. An initial Site investigation around the former solvent AST area was conducted in March 1986 (McKesson, 1986). The investigation included completion of three slant borings (SB1, SB2, SB3), installation of four monitoring wells (PIMW-1 through PIMW-4), and laboratory analysis of six soil samples and three groundwater samples. VOCs (primarily chlorinated solvents) were detected in the soil and groundwater samples collected from the borings and monitoring wells. Groundwater levels were measured at a depth of approximately 25 feet bgs and indicated a flow direction to the southwest. Based on the results of the initial investigation, McKesson recommended conducting additional investigation activities.

During the RI conducted by Harding Lawson Associates (HLA) between June 1990 and February 1991, 41 soil borings were drilled and sampled and 18 groundwater monitoring wells were installed on the Site (Figure 3). Soil samples were analyzed for VOCs, semi-volatile compounds, glycols, petroleum hydrocarbons, pH, and selected ions and metals. Groundwater samples from monitoring wells were analyzed for VOCs, semi-volatile compounds, petroleum hydrocarbons, glycols, pH, conductivity, total dissolved solids, sulfate, surfactants, general minerals, and selected metals to evaluate the Site for spills or releases of chemicals and to evaluate the distribution in groundwater. Based on the results of the RI, the chemicals of concern (COCs) in soil and groundwater were identified as follows:

- 1,1,1-Trichloroethane (1,1,1-TCA);
- Tetrachloroethene (PCE);
- Trichloroethene (TCE);
- Methylene chloride;
- 1,1-Dichloroethene (1,1-DCE);
- 1,2-Dichloroethene (1,2-DCE);
- 1,1-Dichloroethane (1,1-DCA);
- 1,2-Dichloroethane (1,2-DCA); and
- Vinyl chloride.

The environmental investigations indicated the presence of these VOCs in soil, with the highest concentrations detected in the soil column beneath the former solvent AST area (Figure 4). Appendix A contains a summary table of soil analytical data collected during the RI.

2.4 Summary of Soil Remediation Activities

Based on the findings of the RI and the 1992 FS, a final remedy was selected for soil remediation at the Site. The remedy, SVE, was initiated in March 1994 as described in the Final Remedial Action Plan (RAP) (Geomatrix, 1993). The two goals of soil remediation at the Site were presented in the FS (HLA, 1992) and the Final RAP

(Geomatrix, 1993). Both documents were subject to public review and were approved by DTSC. The objectives for on-Site soil remediation were to:

- 1) Reduce concentrations of VOCs in soil to levels that, when partitioned to groundwater, resulted in groundwater VOC concentrations that are protective of groundwater quality to drinking water standards, and
- 2) Reduce concentrations of VOCs in soil such that potential air emissions of VOCs would be acceptable when the solvent USTs were excavated and removed from the Site in 1996.

Based on these objectives, the SVE and treatment system was designed to remediate soil near the former solvent AST area where soil concentrations exceeded the numerical remedial goals established by the baseline risk assessment (Chem Risk; 1992). The SVE system was designed to pneumatically influence this portion of soil at the Site as well as the area beneath the USTs (Geomatrix, 1993b). This design and work plan was approved by DTSC in November 1993.

SVE was initiated at the Site in March 1994 from well E-1. The SVE operated from March 1994 to July 1995, until it was shut down due to treatment system complications. Subsequent to the shutdown, McKesson submitted a workplan to DTSC for the removal of the remaining USTs while the SVE was shut down. The USTs were removed in 1996, and the SVE was restarted with a new catalytic oxidizer and scrubber treatment system in 1998.

In 2001, Geosyntec collected additional Site characterization data to support performance monitoring in assessing the effectiveness of the remediation systems (groundwater extraction and soil vapor extraction). The results of the work were used to evaluate: i) the extent of hydraulic capture of groundwater extraction well EW-1 and the chemical quality of groundwater; ii) the current distribution of VOCs in the soil gas; and iii) the area of capture of the SVE. The specific site investigation activities performed to collect additional data for soil remediation included:

- A site-wide soil gas survey focused in and around the former solvent AST area; and
- Vadose zone extraction system testing.

Two types of SVE system testing were conducted, step testing and transient testing. The step testing was conducted to assess vacuum versus flow characteristics at extraction well E-1 and to assess vacuum-distance relationships in the vadose zone under varied flow conditions.

The SVE transient tests were conducted to assess the role of leakance and spatial variations in the vadose zone and to determine the intrinsic permeability (k) of the vadose zone. The SVE transient test data were evaluated using AQTESOLV. A leaky aquifer solution was used to estimate transmissivity and the ratio (r/B) of the distance (r) from the pumping well (E-1) to the leakage factor (B) based on the vacuum response at the monitoring points. The vacuum response data collected at each of the monitoring points was also evaluated graphically using vacuum-distance relationships (Geosyntec, 2001).

The radius of influence (ROI) of extraction well E-1 was evaluated by plotting the velocity of air flow resulting from the contribution of horizontal flow only (the total flow reduced by the contribution of flow from the leaky semi-confining layer) and the estimated vacuum response at radial distances of B , $2B$ and $3B$ as shown on Figure 5. Based on the results of the vadose zone testing it was concluded that at a radial distance of approximately 120 feet ($3B$), extraction well E-1, operating at a flow rate of 25 scfm, provides significant vacuum and air flow velocity to effectively remove contaminants from the vadose zone (GeoSyntec, 2003).

The results of the soil gas samples collected from 5 and 10 feet bgs indicated that VOCs remained in the soil gas in two areas beneath the Site: 1) within and adjacent to the former solvent AST area; and 2) a small area near SG-5 (Figure 3). It was concluded that significant reductions in the concentrations of VOCs had been achieved through remedial efforts. VOC distributions observed in the soil gas at a depth of 20 feet bgs, which mimicked those observed in groundwater, were concluded to be most likely the result of historical groundwater level changes and off gassing from impacted groundwater and not the result of a continuing source in the vadose zone at more shallow depths.

Three additional vapor extraction wells (E-2, E-3, and E-4) were installed in February 2003 to supplement the existing vapor extraction well E-1 (Figure 3). E-2 was installed in the vicinity of SG-5; E-3 was installed near the southern edge of the former solvent AST area; and E-4 was installed to the west of the former solvent AST area. However,

only E-2 and E-3 were connected to the SVE system. Start-up testing of E-4 showed no significant detections of VOCs, so this well was not put into operation (Geosyntec, 2003).

Monitoring well MW-11s, which is located within the former solvent AST area, contained elevated VOC levels in fine-grained soils. This well was converted to a soil vapor extraction well and connected to the treatment system in September 2006 to enhance the removal of VOCs from the finer-grained sediments of the vadose zone near the former solvent AST area.

The operational history of the SVE system is illustrated on Figure 6 and the cumulative mass removal is illustrated on Figure 7. Because of Site-specific conditions, the SVE has had two distinct operational periods, as described below.

The first operational period for the SVE was March 1994 to July 1995. Extracted soil vapor was treated by a Purus system, and subsequent to startup it became apparent that manufacturer design flaws would impede the sustained operation of the Purus system due to excessive corrosion resulting from vapor condensation with the system.

The Purus system was operated from March 1994 through January 1995 with vapor extraction from one well (E-1) at a flow rate of approximately 12 standard cubic feet per minute (scfm). The flow rate from E-1 was increased to 35 scfm in January 1995. The system operated with occasional shutdowns due to equipment malfunction until July 1995, at which point its continued operation was not feasible due to corrosion and destruction of the equipment by hydrochloric acid generated during the desorption cycle of the treatment process. Over the operational life of the system, approximately 3,300 gallons of recovered solvents were sent off Site for recycling (Geomatrix, 1995b). Assuming 15 percent water content and a specific gravity of 1.35 for the solvent mixture, the estimated mass of VOCs removed from soil was approximately 32,000 pounds (Geomatrix, 1995b).

SVE activities were suspended following decommissioning of the Purus system until the groundwater IRM was developed. The groundwater IRM treatment system included a catalytic oxidizer and scrubber for air-stripper off-gas treatment; this equipment was also capable of treating the vapors extracted from well E-1. Vapor extraction from well E-1 was re-established in May 1998 at a flow rate of approximately 5 scfm. The SVE operated intermittently during 1998 due to scrubber scaling problems and was shut down on 11 January 1999 due to the presence of 1,4-dioxane in the groundwater

influent. The SVE was restarted on 22 February 1999. On 4 October 1999 the SVE was temporarily shut down to facilitate the enhanced in-situ bioremediation pilot study for groundwater. The SVE was restarted on 28 January 2000. The flow rate from E-1 was increased to 15 scfm in February 2000. E-2 and E-3 were connected to the SVE system at a flow rate of 5 scfm from each well in May 2003.

In September 2003, well MW-11s was installed in the northeast corner of the former solvent AST area approximately 35 feet north of vapor extraction well E-1 (Figure 2) (Geosyntec, 2003b). Wells MW-10s and MW-12s were installed to the north and south, respectively, of the former solvent AST area. The VOC concentrations detected in soil samples collected from these wells are illustrated on Figure 8. For comparison, the VOC concentrations detected in soil samples collected from borings and wells in 1990 and 1991 are illustrated on Figure 4. The figures illustrate that VOC concentrations in the coarse-grained sand unit (Layer 2) between depths of 10 and 25 feet bgs have decreased significantly since 1991, indicating that the SVE system is effectively removing the mass of VOCs coarse-grained unit in the former solvent AST area; however, VOC concentrations in the fine-grained units (Layer 1 and Layer 3) remain elevated (Figures 4 and 8).

In September 2006, MW-11s was connected to the treatment system. Extraction from this well began on 11 September 2006 at a flow rate of 5 scfm.

As is typical for vapor extraction systems, the VOC mass removal rates were significantly higher during the first six months of operation, with a VOC mass removal rate of approximately 70 pounds per day achieved in 1994 (Figure 6). The current VOC mass removal rate is approximately 5 pounds per day.

As shown on Figure 7, mass removal through SVE has been significant; however, remaining concentrations of VOCs in fine-grained soils present an ongoing source of VOCs to groundwater. Continued SVE will likely achieve additional reductions in VOC mass; however, the rate of mass removal will continue to be relatively low. If no modifications to the current remediation program are made, cleanup of VOCs from soil and groundwater at the Site will take many decades.

3 REMEDIAL ACTION OBJECTIVES

The following section presents the development of the remedial action objectives (RAOs) as well as the Applicable or Relevant and Appropriate Requirements (ARARs) for the Site.

3.1 Remedial Action Objectives

The remedial action objectives (RAOs) developed in 1992 addressed measures to mitigate potential exposure to contaminants, limit further degradation of groundwater quality, and permit the safe and timely excavation of the USTs remaining at the site (HLA, 1992). The SVE program was implemented in 1994 and has been successful in removing VOC mass from the coarse-grained soil beneath the former solvent AST area. The USTs were safely removed in 1996. However, the SVE program has been less effective at removing VOC mass from the fine-grained soil, where concentrations of VOCs remain elevated (Figures 4 and 8). Due to sorption effects and restricted air flow in the fine-grained soil, it is very difficult to predict what level of VOC removal can be achieved through the use of an additional source remediation technology. Therefore, the RAO of this Supplemental FS is not to achieve a particular cleanup level, but rather to remove as much mass as practicable from beneath the former solvent AST area. The ultimate goal is to reduce the mass of VOCs in soil to levels that are protective of human health and that are protective of groundwater quality. The selection of final cleanup levels will be evaluated following the implementation of the selected additional remediation alternative and consideration of other factors, such as upgradient VOC concentrations.

3.2 Applicable or Relevant Appropriate Requirements

Remedial actions under CERCLA (as amended by the Superfund Amendments and Reauthorization Act) must comply with the substantive provisions of federal and state ARARs [CERCLA Section 121(d)]. "Applicable" requirements are those federal and state cleanup standards, standards of control and other environmental protection requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. If a requirement is not applicable, it still may be "relevant and appropriate." A relevant and

appropriate requirement addresses problems or situations that are substantially similar to those encountered at the CERCLA site. Under USEPA ARAR guidance (CERCLA Compliance with Other Laws Manual: Interim Final, August 1988), a requirement must be both relevant and appropriate to be an ARAR.

It is not unusual that multiple federal and/or state requirements are initially identified as being relevant, even though the requirements address similar issues or circumstances. USEPA ARAR guidance provides for further screening of the “relevant” requirements to determine which requirements are “appropriate” and hence, an ARAR. “Relevant” requirements would not be considered “appropriate” when:

“...another requirement is available that more fully matches the circumstances at the site,” or

“...another requirement is available that has been designed to apply to that specific situation, reflecting an explicit decision about the requirements appropriate to that situation.”

For a state requirement to qualify as an ARAR, it must be promulgated, legally enforceable, more stringent than any corresponding federal requirements, consistently applied, and identified in a timely manner.

ARARs fall into one of three identified categories: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are health- or risk-based numerical limitations or standards that apply to site-specific conditions. Location-specific ARARs are restraints placed on activities conducted in a specific location. Action-specific ARARs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous waste or site remediation activities.

In addition to chemical-, location-, and action-specific ARARs, advisories, criteria, and guidance developed by USEPA or other federal or state agencies may, as appropriate, be considered in developing the CERCLA remedy. These criteria are referred to as “to-be-considered” (TBC) criteria.

The ARARs and TBCs identified for the remediation of soil beneath the former solvent AST area are presented on Table 1. No State or Federal chemical-specific ARARs are identified for soil because the RAO is not to achieve a particular cleanup level, but rather to remove as much mass as practicable from beneath the former solvent AST area. One location-specific ARAR was identified for the Site with regard to seismic

considerations for the distance that a new hazardous waste facility can be located to a fault. Although the Site is not a hazardous waste facility, the selected removal action will comply with these State regulations. State and Federal action-specific ARARs have been identified for the Site regarding the requirements for the generation, storage, and disposal of hazardous waste. Action-specific ARARs were also identified for the Site to comply with State requirements for air emissions that may be generated during the implementation of the remedial alternative.

The TBCs considered appropriate for the remedial alternatives include State Guidance on the design, construction, and destruction specifications for monitoring and extractions wells and exploratory borings.

4 TECHNOLOGY SCREENING

Emerging and proven technologies have been identified, evaluated, and screened to separate those that are potentially applicable for the Site from those that are not. This technology screening was conducted to identify potential remediation technologies available that could be applied for the remediation of fine-grained soils impacted with VOCs beneath the former solvent AST area.

4.1 Screening Criteria

According to USEPA's RI/FS Guidance (USEPA, 1988), technologies are screened to retain implementable technologies that can be used in the development of remedial alternatives. During this screening step, technologies may be eliminated from further consideration based on site characteristics (geology, hydrogeology and geochemistry) and chemical types and distributions that would prevent the technology from being effectively implemented at the Site.

The technologies that were evaluated for the Site were compiled based on information from various technical sources and experience at other environmental sites. The results of the screening of remedial technologies and process options are summarized in Table 2, which lists remedial technologies and screening comments that support conclusions concerning the technical effectiveness, implementability, and cost of the various technologies.

The evaluation criteria are described as follows:

- Effectiveness - This evaluation considers the potential effectiveness of technologies in handling the estimated areas or volumes of media and meeting the remediation goals identified in the remedial action objectives, the potential impacts on human health and the environment during construction and implementation, and how proven and reliable the process is with respect to site COCs and conditions.
- Implementability - This criterion encompasses both the technical and administrative feasibility of implementing a technology. This evaluation of the implementability of technologies focuses on the institutional aspects of implementability, such as the ability to obtain access and

permits for actions, site geology and infrastructure constraints, and the availability of treatment, storage, and disposal services to support the technology.

- Cost - Relative (high, low, or medium) capital and operation and maintenance (O&M) costs are used to compare process options in the same technology type.

4.2 Technologies Retained for Alternative Development

Table 2 summarizes the results of the technology screening on the basis of effectiveness, implementability, and cost. Descriptions of the technologies that passed the screening and how they apply to the Site are summarized below.

4.2.1 In Situ Thermal Treatment

In situ thermal treatment has been retained for alternative development because it is a proven technology for contaminant mass removal in low permeability saturated and unsaturated soils.

The thermal technologies most commonly applied for remediation include steam flushing, electrical resistance heating (ERH; both three-phase and six-phase heating), and thermal conductive heating. Each of these thermal technologies involves increasing the soil and groundwater temperature within the treatment area. Thermal heating can enhance extraction and in situ destruction processes through the following mechanisms [USEPA, 2004a]:

- increasing vapor pressure and volatilization rates of low boiling point chemicals;
- conversion of groundwater to steam and subsequent steam distillation of target chemicals;
- desorption of target chemicals from sorption sites;
- decreasing viscosity of separate phase chemicals which can increase mobility;

- increasing soil permeability through partial (steam, ERH) or complete drying (conductive heating) of the soil matrix;
- increasing both aqueous solubility and aqueous and gaseous molecular diffusion coefficients to increase dissolution and diffusion rates; and
- physical displacement of NAPL mobilized by active flushing of the target area due to the induced gradient from SVE and/or steam injection.

Steam flushing and ERH rely on water to transport heat, and therefore are only effective while soil moisture remains. Alternatively, conductive heating is achieved through heating of the soil, and therefore can be applied at much higher temperatures. ERH and conductive heating are suitable for application in both high and low permeability soils, as the thermal conductivity of soils tends to be fairly uniform as compared to hydraulic permeabilities. As steam flushing relies on hydraulic transport, it is less applicable to low permeability soils.

For all thermal technologies, high rates of groundwater influx into the treatment area may limit the effectiveness of the technology, as the influx of groundwater needs to be heated to continue the remedial process. At sites where groundwater velocities or surface recharge are high, additional controls (i.e., extraction wells) may be required so that the thermal technology can be effective in maintaining adequate heat in the treatment area.

For all thermal technologies, *ex situ* treatment of volatized water and VOCs is required. Implementation of a thermal technology at a site can be very power and cost intensive; however, cleanup goals can be achieved in months to years, in comparison to the years to decades for less aggressive technologies.

4.2.2 Soil Fracturing

Soil fracturing has been retained for alternative development because it is highly effective in low permeability soils that contain large amounts of silt and clay. The effectiveness is also more pronounced if the technology is used in conjunction with other remedial measures such as SVE.

Soil fracturing is a technology designed for enhancing the efficiency of contaminant removal from the subsurface by either introducing new fractures or enlarging existing

fissures for better flow of contaminants towards designated extraction wells. The new fractures are formed primarily in the horizontal direction. Fracturing is not a remedial technique by itself. It is primarily used to enhance the efficiency of an existing or new remedial system. Therefore it can be used for treating various contaminant groups.

Hydraulic fracturing typically involves the injection of water or slurry of water, sand, and a thick gel into geological formation at high pressure and flow. The high fluid pressure will dilate a well borehole and open adjacent cracks. The fracture begins to propagate immediately after fluid pressure exceeds the critical pressure. Once the fluid flow stops or the pressure decreases, the fracture growth stops. The induced fractures are filled with sand or other granular material in the injection fluid thereby forming a network of fractures that has higher permeability than the surrounding soil mass. This newly created fracture network will act as a conduit for flow of vapor and liquids and enhance the removal and/or *in situ* treatment of the contaminants.

Factors that dictate the effectiveness of the fracturing are injection media (air or gas, sand, guar gum gel, other granular material, etc), fracturing equipment, injection pressure and rate, fracture size and shape, and site conditions (USEPA, 1997). For this technology, *ex situ* treatment of VOCs is required. Implementation of this technology at a site can be very power and cost intensive; however, cleanup goals can be achieved in months to years, in comparison to the years to decades for less aggressive technologies.

4.2.3 Deep Soil Mixing

Deep Soil Mixing (DSM) has been retained for alternative development because it has proven to be effective in low permeability soils. This technique is primarily used to construct cut-off or retaining walls and treat soils *in situ* with a series of overlapping stabilizing soil columns. DSM can be used to treat soil contaminated with volatile and semi-volatile chemicals with Thermally Enhanced SVE.

DSM with Thermally Enhanced SVE is the combination of using DSM with thermal soil heating to remove contaminants from soil. In the mixing stage, a dual auger mixing system is used. This process involves the controlled injection and thorough blending of specially-formulated job specific reagents(s) into the soil through multiple overlapping drill bit assemblies. The soil is treated in batches with dual augers breaking up and mixing the soil, which greatly increases the permeability and permits all the soils to be

treated evenly. During augering, hot air and high-pressure steam are injected into the soil. The injected air and/or steam heats the contaminated soil, thermally desorbing the VOCs and volatilizing the non-adsorbed free VOCs. The air carries the volatilized VOCs to the surface. The surface cross-section of the disturbed but actively treated soil mass is tightly sealed with a metal shroud. As the air carrying volatilized VOCs comes off of the surface, they are captured in the shroud and treated through an SVE system.

For both of these technologies, *ex situ* treatment of VOCs is required. Implementation of this technology at a site can be very power and cost intensive; however, cleanup goals can be achieved in months to years, in comparison to the years to decades for less aggressive technologies.

4.2.4 Excavation

Soil excavation has been retained for alternative development because it is a proven technology for contaminant mass removal. Soil excavation is the process of physically excavating soil from the site thereby removing contaminants along with them. Based on the type of contaminants and their properties, the soil will be either disposed of in a regulated landfill/facility or treated in an on-site or off-site facility prior to disposal. The excavation is then backfilled with clean soil.

5 DEVELOPMENT AND EVALUATION OF REMEDIAL ALTERNATIVES

The remedial technologies retained following the screening presented in Table 2 were assembled into five Remedial Alternatives (RAs). The development and evaluation of the five alternatives is described below.

5.1 Development of Remedial Alternatives

As required by USEPA guidance and the NCP, RAs were developed that provide a broad range of environmental protection, from no action to minimal long-term management. Additional alternatives were then developed using the technologies that passed the screening and add benefits such as increased mass removal.

The following five RAs were developed:

- Alternative 1 – No Further Action
- Alternative 2 – In-Situ Thermal Treatment by Conduction Heating
- Alternative 3 – Soil Fracturing
- Alternative 4 – Deep Soil Mixing with Thermally Enhanced SVE
- Alternative 5 – Excavation

5.2 Detailed Evaluation of Remedial Alternatives

In this section, the five alternatives developed for the Site are described in more detail and evaluated with respect to the nine evaluation criteria outlined in USEPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," (USEPA, 1988b). These evaluation criteria serve as the basis for conducting the detailed evaluation and for subsequently selecting an appropriate remedial action. The evaluation criteria are:

Threshold Criteria:

1. Overall Protection of Human Health and the Environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Primary Balancing Factors:

3. Long-term Effectiveness and Permanence
4. Reductions in Toxicity, Mobility, and Volume
5. Short-term Effectiveness
6. Implementability
7. Cost

Modifying Criteria:

8. State Acceptance
9. Community Acceptance.

The two Threshold Criteria ensure that the selected RA protects human health and the environment and must allow attainment of the ARARs, unless an ARAR waiver is granted. The next set of criteria, the Primary Balancing Criteria, are grouped together because they represent the primary criteria upon which the analysis is based, evaluate how the different RAs compare with one another and identify tradeoffs between them. The final group, the Modifying Criteria, incorporate acceptance by state and other responsible regulatory entities, and by the local community. These two criteria will be evaluated by DTSC according to USEPA's RI/FS Guidance (USEPA, 1988).

The detailed analysis of each RA includes a description of each alternative and evaluation of the alternative based on the first seven of the nine criteria described above.

5.2.1 Evaluation Criteria

The seven criteria used to evaluate each alternative are described as follows.

1. **Overall Protection of Human Health and the Environment.** Evaluates how each RA achieves adequate protection of human health and the environment and how Site specific risks (exposure pathways) are eliminated, reduced or controlled through treatment, engineering or institutional controls. Also evaluates whether the RA poses unacceptable short-term or cross-media impacts.
2. **Compliance with ARARs.** Evaluates how each RA will meet Federal, State or local ARARs identified for the Site.
3. **Long-Term Effectiveness and Permanence.** Evaluates the RA with respect to how it effectively addresses the risks remaining at the Site after the RAOs have been met.
4. **Reduction of Toxicity, Mobility, or Volume.** Evaluates the RA with respect to how well it can permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as its principal element. This preference is satisfied when the RA reduces the principal threats through destruction of toxic contaminants, reduction of the total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.
5. **Short-Term Effectiveness.** Evaluates the RA with respect to its effects on human health and the environment during implementation of the remedial action. Each RA is evaluated based on how well it protects the community during the remedial actions, protection of the workers during the remedial actions, adverse environmental impacts that may result from construction and implementation of the RA, and the time to achieve RAOs.
6. **Implementability.** Evaluates each RA with respect to how well it can be implemented on a technical and administrative basis and the available services and materials required during its implementation. Technical feasibility includes construction, operation, and reliability of the technologies that comprise the alternative, monitoring considerations, and whether additional remedial action would be required. Administrative feasibility includes obtaining permits and rights-of-way for off-site construction, available services and materials for storage,

treatment, and disposal, access to necessary equipment and specialists, and potential for obtaining competitive bids for more innovative technologies.

7. **Cost.** The overall cost of each RA is estimated. Included in the overall costs are capital costs, indirect costs (such as engineering expenses and permitting costs), startup costs, contingency costs, annual O&M costs, and a present worth analysis.

5.2.2 Individual Analysis of Alternatives

The assembled RAs represent a range of remedial strategies that address human health and environmental concerns associated with the Site. The description of the alternatives and the analysis with respect to the seven criteria reflect the fundamental components of the various remedial strategies being considered for the Site. The following evaluation does not include state or community acceptance.

Alternative 1 - No Further Action

Description: The No Further Action alternative provides a baseline for comparing other alternatives. In this alternative, the SVE program currently in operation at the Site would continue to remediate unsaturated soil beneath the former solvent AST area. This alternative is currently being implemented at the site and the present value cost for a 30-year operation period is estimated at \$4,200,000.

Evaluation According to EPA Criteria: Alternative 1 provides an adequate level of protection of human health and the environment because it includes a mechanism to confirm that VOC concentrations in soil achieve RAOs, although the time to achieve RAOs is likely to be decades. The alternative can be designed to meet local ARARs, and with ongoing periodic monitoring, it would be possible to confirm that the alternative complies with ARARs.

At the point of achievement of the RAOs, which would likely require decades, the residual risk to human health and the environment would be acceptable. The alternative reduces the toxicity, mobility, and volume of VOCs in soil through extraction and *ex situ* treatment.

Alternative 2 – In-situ Thermal Treatment

Description: This alternative includes *in situ* thermal treatment by conductive heating in the vadose zone and the upper 15 feet of the A₁ groundwater zone beneath the former solvent AST area. The In Situ Thermal Desorption (ISTD) process utilizes both conductive heating and vacuum to remediate soils contaminated with a wide range of organic compounds. Heat and vacuum are applied simultaneously to the soil with an array of vertical heaters, under an imposed vacuum. Each heater contains a heating element with an operating temperature of approximately 1,400 to 1,500°F (750 to 800°C). Heat flows through the soil from the heating elements primarily through thermal conduction, providing a uniform heat transfer. As the soil is heated, volatile, semi-volatile and non-volatile organic contaminants in soil (whether dissolved, sorbed, or present as NAPL) are vaporized and/or destroyed. The vaporized water and contaminants are drawn counter-current to the heat flow into the vacuum extraction wells and treated *ex situ*.

During the installation of the vertical heater/extraction wells, the existing extraction and monitoring wells (both groundwater and soil vapor) within the former solvent AST area will be destroyed. Extracted soil vapor will be treated by the existing catalytic oxidation unit currently in operation at the Site. Treated soil vapor will be discharged to the atmosphere in compliance with the Site's SCAQMD permit to operate. The present value cost for Alternative 2 is estimated at \$2,100,000.

Evaluation According to EPA Criteria: Alternative 2 provides an adequate level of protection of human health and the environment because it includes mechanisms to confirm that COC concentrations in soil achieve RAOs in a reasonable timeframe. The alternative can be designed to meet local, state, and federal ARARs.

Achievement of the RAOs would likely require one year of treatment, at which time the residual risk to human health and the environment may be acceptable. The alternative reduces the toxicity, mobility, and volume of COCs in soil through heat-enhanced extraction and *ex situ* treatment. Alternative 2 would be relatively simple to implement, as the Site is currently vacant and equipment for the treatment of extracted soil vapor is currently in operation at the Site. This alternative also includes the remediation of the upper 15 feet of the A₁ groundwater zone. The remediation of a portion of the saturated zone provides a mechanism to reduce the mass of VOCs in groundwater in a shorter time period.

Alternative 3 – Soil Fracturing

Description: This alternative includes inducing predominantly horizontally oriented fractures in the fine-grained soils beneath the former solvent AST area in the vadose zone only. The horizontal fractures would be filled with sand and extend radially from the injection points. The fractures are estimated to have a radius of approximately 15 feet and a radius of influence of approximately 30 feet. The sand-filled fractures will enhance the efficiency of contaminant removal from the subsurface in these fine-grained soils.

As part of this alternative, additional extraction wells would have to be installed to depths of 40 feet bgs to extract soil vapor from the fractured layers. Some of the existing monitoring and extraction wells within the former solvent AST area may have to be destroyed prior to inducing the fractures. Extracted soil vapor would be treated by the existing catalytic oxidation unit currently in operation at the Site. Treated soil vapor would be discharged to the atmosphere in compliance with the Site's SCAQMD permit to operate. The present value cost of Alternative 3 is estimated at \$1,800,000.

Evaluation According to EPA Criteria: Alternative 3 provides an adequate level of protection of human health and the environment because it includes mechanisms to confirm that COC concentrations in soil achieve RAOs in a reasonable timeframe. The alternative can be designed to meet local, state, and federal ARARs.

Achievement of the RAOs would likely require several years to decades. The time to reduce the mass of VOCs in the fractured layers will depend on the radial extent of the fractures. Once the RAOs have been achieved, the residual risk to human health and the environment would be acceptable. The alternative reduces the toxicity, mobility, and volume of VOCs in soil through enhanced soil vapor extraction and *ex situ* treatment, but does not include treatment in the saturated zone. This alternative would be somewhat difficult to implement, as there is potential for fracturing to extend to adjacent sites.

Alternative 4 – Deep Soil Mixing with Thermally Enhance SVE

Description: This alternative includes DSM utilizing Dual Auger mixing technology combined with hot air/steam injection in the vadose zone only. Prior to the implementation of this alternative, the existing extraction and monitoring wells (both groundwater and soil vapor) within the former solvent AST area would have to be

destroyed. During the drilling operation, the dual auger flights would break the soil loose allowing the mixing blades to blend the soil into a homogeneous mixture. This greatly increases the permeability and permits all the soils to be treated evenly. During the augering, hot air and high-pressure steam would be injected into the contaminated soil. The steam heats the VOC contaminated soil, thermally desorbing the VOCs and also volatilizing the non-adsorbed free VOCs. The air carries the volatilized contamination to the surface. A metal shroud seals tightly the surface cross-section of the actively treated soil mass that has been disturbed due to the mixing. The contaminated vapors, following the path of least resistance, would be captured in the shroud as they come to the surface. Extracted soil vapor would be treated by the existing catalytic oxidation unit currently in operation at the Site. Treated soil vapor would be discharged to the atmosphere in compliance with the Site's SCAQMD permit to operate.

Operation of the DSM would last approximately 30 days. Following the operation of the DSM, extraction and monitoring wells would be re-installed within the former solvent AST area and the SVE system would continue to operate for approximately three to five years. The present value cost of Alternative 4 is estimated at \$1,100,000.

Evaluation According to EPA Criteria: Alternative 4 provides an adequate level of protection of human health and the environment because it includes mechanisms to confirm that COC concentrations in soil achieve RAOs in a reasonable timeframe. The alternative can be designed to meet local, state, and federal ARARs.

At the point of achievement of the RAOs, which would likely require three to five years, the residual risk to human health and the environment would be acceptable. The alternative reduces the toxicity, mobility, and volume of VOCs in soil through enhanced soil vapor extraction and *ex situ* treatment, but does not include treatment of the saturated zone. This alternative would be relatively simple to implement, as the Site is currently vacant and equipment for the treatment of extracted soil vapor is currently in operation at the Site.

Alternative 5 – Excavation

Description: This alternative includes soil excavation beneath the former solvent AST area to a depth of 45 feet bgs. Prior to excavation activities, existing monitoring and extraction wells within the former solvent AST area would have to be destroyed. Based on the depth of the excavation, shoring would need to be installed. During excavation

activities, air monitoring and abatement would be required based on the VOC concentrations in the soil. This alternative would remove VOCs only from the vadose zone.

Prior to disposal, excavated soil would be stockpiled on-Site for profiling. Based on the type of contaminants and their properties, the soil would be either disposed of in a regulated landfill/facility or treated in an on-Site or off-Site facility prior to disposal. The excavation would then be backfilled with clean soil. The present value cost for Alternative 5 is estimated to range from \$6,800,000 to \$26,000,000 depending on shoring and disposal requirements.

Evaluation According to EPA Criteria: Alternative 5 provides an adequate level of protection of human health and the environment because it includes mechanisms to confirm that COC concentrations in soil achieve RAOs in a reasonable timeframe. The alternative can be designed to meet local, state, and federal ARARs. However, excavation is not a preferred CERCLA remedy (40 CFR section 300.430(f)(1)(ii)(E)).

At the point of achievement of the RAOs, which would likely be approximately one year, the residual risk to human health and the environment would be acceptable. The alternative will not reduce the toxicity, mobility, and volume of COCs, unless the excavated soil is treated in an on-Site or off-Site facility prior to disposal, and does not include treatment of the saturated zone. Alternative 5 would be difficult to implement as shoring would be required given the depth of the excavation and significant air monitoring and abatement measures may be necessary depending on the VOC concentrations in the soil. This alternative may also be difficult to implement due to the amount of traffic from the trucks disposing of the excavated soil.

5.3 Comparison of Alternatives and Recommended Alternative

In comparing the five alternatives for remediation at the Site, Alternatives 1 and 3 do not meet the RAO of reducing the mass of VOCs in the fine-grained soils beneath the former solvent AST area in a significantly reduced period of time. Alternative 4 meets the RAO and the technical implementability criterion for soil; however, it would take longer to achieve the RAO than Alternative 2 for a small cost difference and does not include treatment for saturated soil. Alternative 5 meets the RAOs in the shortest timeframe; however, it is not a preferred remedy under CERCLA and would be difficult to implement due to shoring requirements, potential air monitoring and air abatement

measures, and truck traffic. This alternative is also very expensive due to the depth of the excavation and disposal costs.

Alternative 2 – In Situ Thermal Treatment, is the recommended remedial alternative for the Site. This alternative will meet the RAO of reducing the mass of VOCs in the fine-grained soils beneath the former solvent AST area within a short time frame compared to the other alternatives, with the exception of Alternative 5. Of the five alternatives evaluated, this is the only one that includes the remediation of the upper 15 feet of the A₁ groundwater zone. The remediation of a portion of the saturated zone provides a mechanism of reducing the mass of VOCs in soil to levels that are protective of human health and that are protective of groundwater quality in a shorter time period.

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Tables

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TABLES

Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
ACTION-SPECIFIC CRITERIA					
State Regulatory Requirement	Soil	California Water Code §§13140 13147,13172,132 60, 13263, 13267, 13304 27 CCR Div. 2, Subdiv. 1, Chap. 3, Subchap. 2, Art. 2	Applicable	Wastes classified as a threat to water quality (designated waste) may be discharged to a Class I hazardous waste or Class II designated waste management unit. Nonhazardous solid waste may be discharged to a Class I, II, or III, waste management unit. Inert waste would not be required to be discharged into a SWRCB-classified waste management unit (27 CCR §20200 et seq.). The requirement is applicable because CERCLA waste as a result of investigation-derived waste may be generated and would be disposed at a EPA Region IX approved facility in accordance with CERCLA.	Waste streams not meeting cleanup criteria will be classified for disposal to appropriate permitted offsite waste management units. CERCLA waste (e.g. contaminated soil) will be disposed at an offsite disposal facility.

MCK0067006

Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
State Regulatory Requirement	Soil	California Hazardous Waste Control Law H&S Code Div. 20, Chap. 6.5 Identification and Listing of Hazardous Waste 22 CCR Div. 4.5, 22 CCR §66264.13 22 CCR §66260.200	Applicable	The California law is more stringent than federal hazardous waste law and is applied to this Site. A generator must determine if the waste is classified as a hazardous waste in accordance with the criteria provided in these requirements. Waste characteristics of treated soil will be defined prior to treatment and disposal. This methodology to characterize waste at the Site may determine that some of the waste at the Site meet the characteristics of hazardous waste.	The determination of whether wastes generated during removal action activities, such as soil cuttings from well installation and treatment residues will be made when the wastes are generated.
Federal and State Regulatory Requirement	Soil	Hazardous Waste Security 22 CCR §66264.14	Relevant and Appropriate	Any proposed treatment facility is anticipated to maintain a fence in good repair which completely surrounds the active portion of the facility. A locked gate at the facility should restrict unauthorized personnel entrance. The security standards to prevent entry from unauthorized personnel for the proposed removal action alternative should be applied.	Although this is not a hazardous waste facility, the selected remedy will comply with these regulations as specified.
Federal and State Regulatory Requirement	Soil	Hazardous Waste Regulations Accumulation Time 22 CCR §66262.34	Applicable	Onsite hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, is labeled and dated, etc.	If wastes generated during removal action activities are hazardous, they will be managed to comply with these requirements.

MCK0067007

Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
Federal and State Regulatory Requirement	Soil	Hazardous Waste Facility General Inspection Requirements and Personnel Training 22 CCR §§66264.15 - 66264.16	Relevant and Appropriate	The hazardous waste facility standards require routine facility inspections conducted by trained hazardous waste facility personnel. Inspections are to be conducted at a frequency to detect malfunctions and deterioration, operator errors, and discharges which may be causing or leading to a hazardous waste release and a threat to human health or the environment.	Although this is not a hazardous waste facility, the selected remedy will incorporate an operation and maintenance program to be implemented by trained personnel.
Federal and State Regulatory Requirement	Soil	Preparedness and Prevention 22 CCR Div. 4.5, Chap. 14, Art. 3	Relevant and Appropriate	This regulation requires that the facility's design and operation minimize the potential for fire, explosion, or unauthorized release of hazardous waste.	Although this is not a hazardous waste facility, selected remedy will be properly designed, operated and maintained to comply with substantive requirements.
Federal and State Regulatory Requirement	Soil	49 CFR Parts 173,178,179 22 CCR Div. 4.5, Capt. 12 22 CCR §66262.20	Applicable	Generators who transport hazardous waste for off-site treatment, storage or disposal shall prepare a Manifest in accordance with these regulatory provisions.	The selected removal action will comply with these regulations as specified.
Federal and State Regulatory Requirement	Soil	Use and Management of Containers 22 CCR Div. 4.5, Chap. 14, Art. 9	Applicable	This regulation requires that a generator maintain container and dispose to a Class I hazardous waste disposal facility within 90 days. Storage of investigation-derived waste (<i>i.e.</i> , soil cuttings) will be generated. Requirements may apply for the storage of contaminated groundwater and sediments trapped by the bag filter during start-up operation. The 90-day storage limit is to not create a greater environmental hazard than already exists.	If waste is determined to be RCRA hazardous waste, waste contained onsite will be maintained in a container in good condition prior to offsite disposal to appropriate permitted offsite waste management units.

Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
State Regulatory Requirement	Soil	Miscellaneous Units Requirements 22 CCR Div. 4.5, Chap. 14, Art. 16 22 CCR §66264.601 - 66264.603	Relevant and Appropriate	Minimum performance standards are established for miscellaneous equipment to protect health and the environment. Treatment of hazardous waste through an air stripper or granulated activated carbon (GAC) would qualify as a RCRA miscellaneous unit if the contaminated water constituted a hazardous waste. Therefore, the substantive requirements for miscellaneous units and related substantive closure requirements may be relevant and appropriate for the Site.	Although this is not a hazardous waste facility, the selected remedy will be properly designed, operated and maintained to comply with substantive requirements.
State Regulatory Requirement	Air	Regulation IV, Rule 402, Nuisance	Applicable	A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.	The selected removal action will comply with these regulations as specified.

Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
State Regulatory Requirement	Air	Regulation IV, Rule 403, Fugitive Dust	Applicable	Emissions of fugitive dust shall not remain visible in the atmosphere beyond the property line of the emission source. Activities conducted in the South Coast Air Basin shall use best available control measures to minimize fugitive dust emissions and take necessary steps to prevent the track-out of bulk material onto public paved roadways as a result of their operations.	The selected remedy will comply with these regulations as specified.
State Regulatory Requirement	Air	Regulation IV, Rule 404, Particulate Matter -- Concentration.	Applicable	Particulate matter in excess of the concentration standard conditions shall not be discharged from any source. Particulate matter in excess of 450 milligrams per cubic meter (0.196 grain per cubic foot) in discharged gas, calculated as dry gas at standard conditions, shall not be discharged to the atmosphere from any source.	The selected remedy will comply with these regulations as specified.
State Regulatory Requirement	Soil	Land Disposal Restrictions 22 CCR §66268	Applicable	All hazardous wastes are prohibited from land disposal unless the wastes have been exempted, granted a variance or an extension under State law, or unless the wastes meet the applicable treatment standards.	The selected removal action will comply with these regulations as specified.

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Table 1
Summary of ARARs
Former McKesson Chemical Company
Santa Fe Springs, California

Authority	Medium	Requirement	Status	Synopsis of Requirement	Action to be Taken to Attain Requirement
LOCATION-SPECIFIC CRITERIA					
State Regulatory Requirement	Soil	Hazardous Waste Seismic Considerations 22 CCR §66264.18 22 CCR §66264.25	Relevant and Appropriate	Portions of a new hazardous waste facility where treatment, storage, or disposal of hazardous waste will be conducted must not be located within 61 meters (200 feet) of a fault which has had displacement in Holocene time.	Although this is not a hazardous waste facility, the selected removal action will comply with these regulations as specified.
TO-BE-CONSIDERED (TBC) CRITERIA that have been adopted as Performance Standards					
State Guidance	Soil	California Well Standards California Department of Water Resources Bulletin 74-90	TBC	This is a supplement to Bulletin 74 81(domestic water well standards) that address minimum specifications for monitoring wells, extractions wells, injection wells, and exploratory borings. Design and construction specifications are considered for construction and destruction of wells and borings.	Design and construction specifications are considered for construction and destruction of wells and borings.

Table 2
Remedial Alternative Technology Screening
Former McKesson Chemical Company
Santa Fe Springs, California

Technology	Description of Technology	Effectiveness	Implementability		Cost	Recommended for Alternative Development
			Advantages	Disadvantages		
THERMAL						
Electric Heating by Conduction	Technology uses thermal wells, along with heated extraction wells in some cases, which can be placed to virtually any depth in virtually any media. Heat is injected into the soil by thermal conduction from heater and vacuum wells. The heat radiates away from the wells while vaporized contaminants are drawn back towards the well by applied suction in a counter current fashion. The wells are connected through piping to a treatment system where the extracted vapors are treated and discharged to the atmosphere.	This technology is particularly effective on low permeability soils. Thermal conduction can treat VOCs, SVOCs including free product in the form of LNAPLs and DNAPLs. The treatment process can be completed in less than one year. This technique historically achieves a 99% removal efficiency.	<ul style="list-style-type: none"> -rapid remediation, can be completed in less than 1 year -can achieve 99% removal rates -can use existing cat-ox system to treat extracted vapors -the site is vacant and the target treatment area is not covered so implementation would be relatively simple -increases in temperature can stimulate biological activity 	<ul style="list-style-type: none"> -technology equipment- and power-intensive, so it is relatively expensive -higher O&M costs will be incurred during system operation due to power requirements, higher extraction rates, and high quantities of VOC mass removed -SVE and groundwater wells will have to be destroyed and replaced with new wells constructed of materials able to withstand high operating temperatures -To control potential air emissions, additional air monitoring/abatement measures may need to be implemented -post-treatment sampling may be a problem due to the high temperature of the soil 	\$159-380/yr ³	<p align="center">Yes</p> <p>This technology can effectively remove contaminants from fine-grained soils (both unsaturated and saturated) beneath the former AST area.</p>
Electric Heating by Resistance	Electrical Resistance Heating (ERH) is a polyphase electrical technique for rapidly heating soil and groundwater using three or six phases, creating an in-situ source of steam to volatilize contaminants from the subsurface and remove the contaminants using SVE. Electrodes are installed in the subsurface and used to increase the temperature in the formation to the boiling point of target contaminants. As the temperature increases, dissolved contaminants partition to the vapor phase and are extracted and treated with an SVE system.	This technology is particularly effective on low permeability soils. ERH can treat VOCs, SVOCs including free product in the form of LNAPLs and DNAPLs. Technology requires soil surrounding the electrodes to remain moist during operations. The treatment process can be completed in less than one year. This technique historically greater than a 97% removal efficiency.	<ul style="list-style-type: none"> -rapid remediation, can be completed in less than 1 year -can achieve 97% removal rates -can use existing cat-ox system to treat extracted vapors -the site is vacant and the target treatment area is not covered so implementation would be relatively simple -increases in temperature can stimulate biological activity 	<ul style="list-style-type: none"> -effectiveness of technology depends on soil moisture, once soil is dried heating becomes uneven and efficiencies decrease -higher O&M costs will be incurred during system operation due to power requirements, higher extraction rates, and high quantities of VOC mass removed -SVE and groundwater wells will have to be destroyed and replaced with new wells constructed of materials able to withstand high operating temperatures -To control potential air emissions, additional air monitoring/abatement measures may need to be implemented -Treatment area must be treated as an exclusion zone to avoid electrocution risks -post-treatment sampling may be a problem due to the high temperature of the soil 	\$98-168/yr ³	<p align="center">No</p> <p>This technology can effectively remove contaminants from fine-grained soils; however effectiveness depends on soil moisture and once the soil is dried heating becomes uneven and efficiencies decrease. Therefore, this technology was not considered feasible to implement.</p>

Table 2
Remedial Alternative Technology Screening
Former McKesson Chemical Company
Santa Fe Springs, California

Technology	Description of Technology	Effectiveness	Implementability		Cost	Recommended for Alternative Development
			Advantages	Disadvantages		
Steam Injection	Steam injection wells are used in conjunction with dual-phase extraction wells for in-situ treatment of contaminated soil and groundwater. The injected steam increases the subsurface temperature and accelerates desorption of contaminants from the formation. Volatilized contaminants are extracted and treated at the surface.	This technology is effective for most soil types but it is best suited for zones of moderate to high permeability. Steam injection can treat VOCs, SVOCs including free product in the form of LNAPLs and DNAPLs. This technique historically achieves greater than a 97% removal rate.	-rapid remediation, can be completed in less than 1 year -can achieve 97% removal rates -relatively less expensive than other thermal treatment alternatives -can use existing cat-ox system to treat extracted vapors -the site is vacant and the target treatment area is not covered so implementation would be relatively simple	-typically more applicable to zones of medium- to high-permeability -higher O&M costs will be incurred during system operation due to higher extraction rates and high quantities of VOC mass removed -steam injection can cause contaminant migration -relies on water to transport heat, so technology only effective while soil remains moist -SVE and groundwater wells will have to be destroyed and replaced with new wells constructed of materials able to withstand high operating temperatures -To control potential air emissions, additional air monitoring/abatement measures may need to be implemented -post-treatment sampling may be a problem due to the high temperature of the soil	\$64-96/yd ³	No This technology would not be feasible for remediating the fine-grained soils beneath the former AST area.
Radio Frequency Heating	Radio frequency heating imparts heat to nonconductive materials through the application of carefully controlled radio frequency transmissions. The technology is applied through vertical or horizontal boreholes in the area to be treated. An RF generator supplies energy to multiple electromagnetically coupled down-hole antennas. The temperature of the subsurface rises as it absorbs electromagnetic energy radiating from the antennas. Volatilized vapors are extracted and treated at the surface.	This technology is particularly effective on low permeability soils. Radio frequency heating can treat VOCs and SVOCs. The treatment process takes approximately one year to complete. This technique historically greater than a 95% removal efficiency.	-rapid remediation, can be completed in less than 1 year -with RF, much faster heating rates and uniform heating can potentially be obtained than with other thermal techniques -no fluid injection required -operated under vacuum contaminant conditions, so chances of contaminant spreading is minimized	-higher temperatures achieved with RF can inhibit biological activity -may induce some fracturing of the soil structure as it dries, which may cause contaminant migration -higher O&M costs will be incurred during system operation due to higher extraction rates and high quantities of VOC mass removed -SVE and groundwater wells will have to be destroyed and replaced with new wells constructed of materials able to withstand high operating temperatures -To control potential air emissions, additional air monitoring/abatement measures may need to be implemented -post-treatment sampling may be a problem due to the high temperature of the soil	\$98/yd ³	No This technology can effectively remove contaminants from fine-grained soils; however the heating can induce some fracturing of the soil structure as it dries, which may cause contaminant migration. Therefore, this technology was not considered feasible to implement.
FRACTURING						
Pneumatic Fracturing	Pneumatic fracturing is the injection of gas at high pressure and flow in order to create fractures or fissures in soil or rock matrix. In soil formations pneumatic fracturing enhances the permeability by creating fracture networks so that vapors and liquids can be extracted and treated at the surface.	This technique is effective on low permeable layers. Technology more effective when used in conjunction with other remedial measures (i.e., SVE) to increase the rate of mass removal.	-increases permeability of low permeability soil layers and accelerates the rate of mass removal -relatively simple and inexpensive to implement -Technology has been tested in EPA SITE Demonstration Program (fracturing in clay with VOC contamination) - results indicated rate of air flow increased up to 10 times, concentrations of VOCs in extracted air stream increased up to 200 times	-Additional SVE wells will have to be installed to depths of 40 feet bgs and piped to the SVE system -Existing SVE equipment (e.g., larger blower) may have to be updated/replaced to handle the higher extraction rates -The SVE system will have to operated for a longer period of time to remove the VOC mass from the fractured layers	95-185\$/yd ³	No This technology would be difficult to implement in ensuring that the fractures remain open once they are induced.

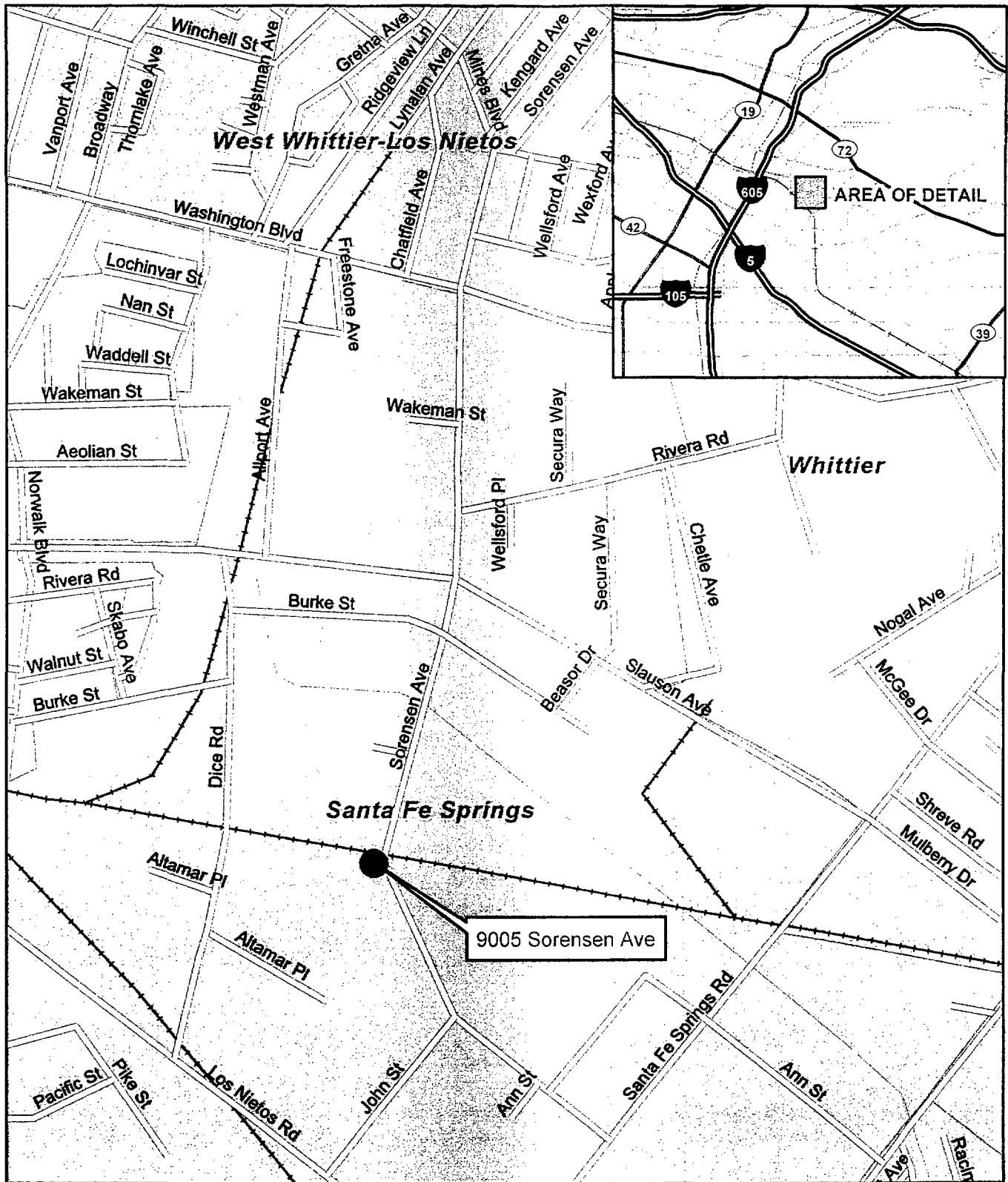
Table 2
Remedial Alternative Technology Screening
Former McKesson Chemical Company
Santa Fe Springs, California

Technology	Description of Technology	Effectiveness	Implementability		Cost	Recommended for Alternative Development
			Advantages	Disadvantages		
Hydraulic Fracturing	Hydraulic fracturing is a process whereby a fluid is pumped into a formation at a rate and pressure high enough to overcome the in-situ confining stressing and the material strength of the formation resulting in the creation of a fracture. The purpose of fracturing a low permeability soil is to create a network of induced, sand-filled fractures of greater permeability than the surrounding soil mass, and to use the fracture network created for enhancing the removal and/or in-situ treatment of the contaminants.	This technique is effective on low permeable layers. Technology more effective when used in conjunction with other remedial measures (i.e., SVE) to increase the rate of mass removal.	-increases permeability of low permeability soil layers and accelerates the rate of mass removal -relatively simple and inexpensive to implement -Technology has been tested in EPA SITE Demonstration Program (fracturing in clay/silty clay with VOC contamination) - results indicated rate of extraction increased up to 10 times, concentrations of VOCs extracted increased up to 10 times)	-Additional SVE wells will have to be installed to depths of 40 feet bgs and piped to the SVE system -Existing SVE equipment (e.g., larger blower) may have to be updated/replaced to handle the higher extraction rates -The SVE system will have to be operated for a longer period of time to remove the VOC mass from the fractured layers	73-94\$/yd ³	Yes This technology can effectively enhance the removal of contaminants from fine-grained soils beneath the former AST area.
DEEP SOIL MIXING						
Deep Soil Mixing w/ Thermally Enhanced SVE	The Dual Auger Mixing System involves the controlled injection and thorough blending of specially-formulated job specific reagents(s) into the soil through multiple overlapping drill bit assemblies. The soil is treated in batches with the Dual Auger breaking up and mixing the soil, which greatly increases the permeability and permits all the soils to be treated evenly. During the augering, hot air and high-pressure steam are injected into the soil.	Soil mixing is particularly effective for low permeability soils. The injected steam heats the contaminated soil, thermally desorbing the VOCs and also volatilizing the non-adsorbed free VOCs. The air carries the volatilized VOCs to the surface. A metal shroud seals tightly the surface cross-section of the actively treated soil mass that has been disturbed due to the mixing. The vapors, following the path of least resistance, are captured in the shroud as they come off the surface and treated. This technique historically achieves greater than 90% contaminant removal rates.	-simple to implement and provides high treatment efficiencies -no chemical handling or injection permits required -limited health & safety risks -site is vacant, target treatment area not covered, no overhead power lines makes implementation relatively simple	-Size of the equipment significantly increases the cost of mobilization/demobilization -SVE and groundwater wells will have to be destroyed and replaced prior to the soil mixing	\$125/yd ³	Yes This technology can effectively enhance the removal of contaminants from fine-grained soils beneath the former AST area.
Deep Soil Mixing w/ Thermally Enhanced SVE & Zero Valent Iron Injection	The Dual Auger Mixing System involves the controlled injection and thorough blending of specially-formulated job specific reagents(s) into the soil through multiple overlapping drill bit assemblies. The soil is treated in batches with the Dual Auger breaking up and mixing the soil, which greatly increases the permeability and permits all the soils to be treated evenly. During the augering, zero valent iron, hot air and high-pressure steam can be injected into the soil.	Soil mixing is particularly effective for low permeability soils. The steam and air remove VOCs as described above and the injected ZVI continues the reaction process by creating a reducing environment, which promotes the degradation of residual VOCs by dechlorination. The addition of ZVI in conjunction with the hot air/steam provides residual treatment after the soil mixing is complete. This technique historically achieves greater than 95% contaminant removal rates.	-simple to implement and provides high treatment efficiencies -limited health & safety risks -site is vacant, target treatment area not covered, no overhead power lines makes implementation relatively simple -addition of ZVI provides residual treatment after soil mixing is completed	-Size of the equipment significantly increases the cost of mobilization/demobilization -SVE and groundwater wells will have to be destroyed and replaced prior to the soil mixing -injection of ZVI will require additional permitting	\$165/yd ³	No This technology can effectively enhance the removal of contaminants from fine-grained soils beneath the former AST area; however, the biofouling from the ZVI may decrease the effectiveness of the treatment system.
EXCAVATION						
Soil Excavation	Removes contaminants by physically removing the contaminated soil and disposing it at a separate facility.	Will effectively remove (100%) contaminants and soil from site.	-remediation of source area will be complete	-implementation of this technique will require a large amount of space for the excavation equipment -if shoring is not implemented significant setbacks will be required, which will increase the volume of soil removed -based on the VOC concentrations air monitoring and abatement may be required. -soil disposal costs may be high if soil classified as hazardous	\$163-985/yd ³	Yes This technology would permanently remove contaminated soil beneath the former AST area.

Figures

MCK0067015

FIGURES



0 500 1,000 2,000 Feet

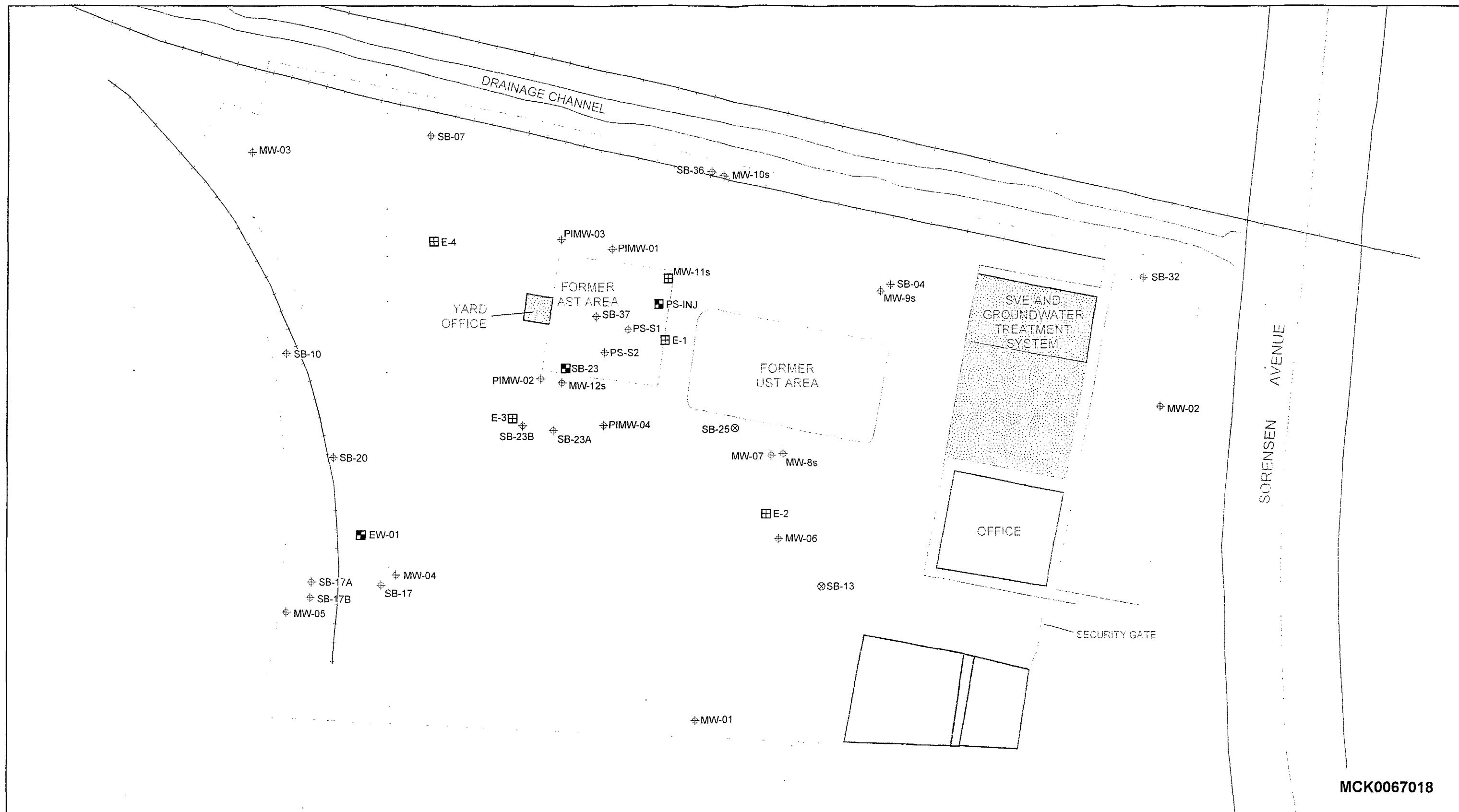


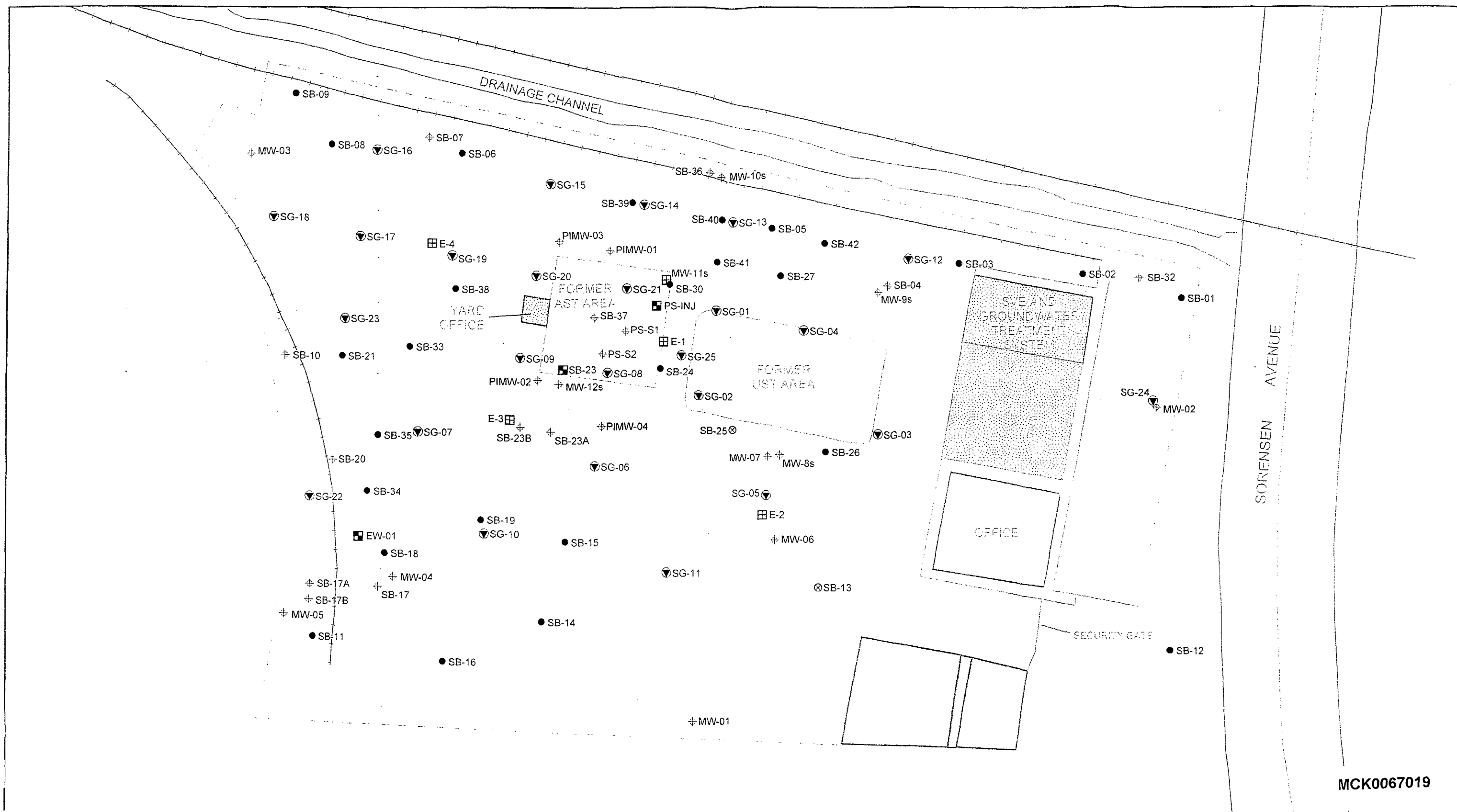
Figure 1
Site Location Map
9005 Sorensen Avenue
Santa Fe Springs, California 90670

Project: HA0620

Former McKesson Chemical Company
 Santa Fe Springs, California

Geosyntec
 consultants





Legend

MW-01 Sample Location and Name

NOTE: Base map adapted from site plans prepared by Geomatrix (2001)

Groundwater Monitoring Well

Groundwater Extraction Well

Vapor Extraction Well

Soil Sample Location

Soil Gas Sample Location

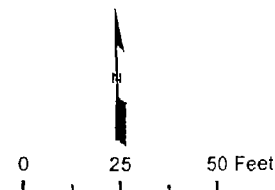
Abandoned Well

Concrete Surfacing

Building

Cyclone Fence

Railroad Track



Geosyntec
consultants

Project No. HA0620-13

Document No.

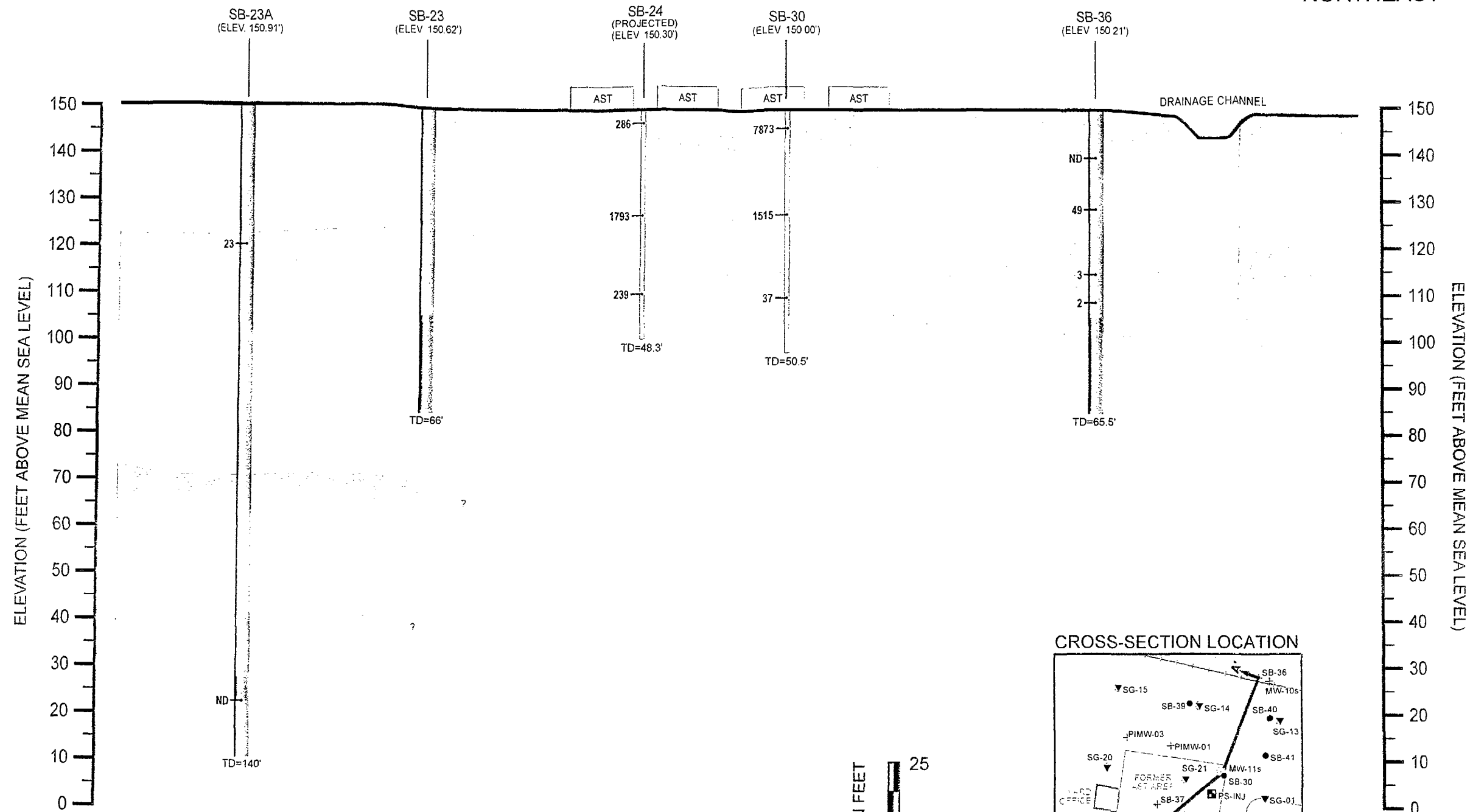
February 2007

Figure 3

On Site Investigation Locations
Former McKesson Chemical Company
Santa Fe Springs, California

A
SOUTHWEST

A'
NORTHEAST



LEGEND



SP - SW

SM - SC

ML - CL



Well Casing

Well Screen Interval



Soil Boring

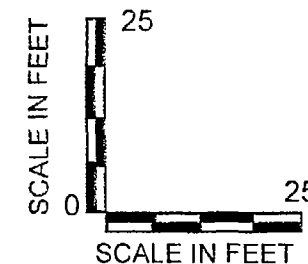
AST - Above Ground Storage Tank

ND - Not Detected

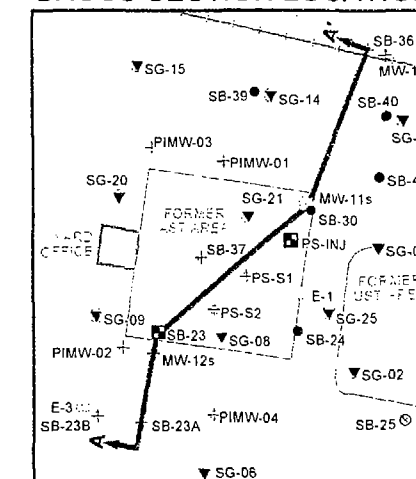
TD - Total Depth

373.26 — Total VOC Concentration in mg/kg (milligrams per kilogram)

Soil Samples Collected from SB-24 and SB-30 in 1990; Soil Samples Collected from SB-23, SB-23A, and SB-36 in 1991.



CROSS-SECTION LOCATION



MCK0067020

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PROJECT NO. HA0620-13

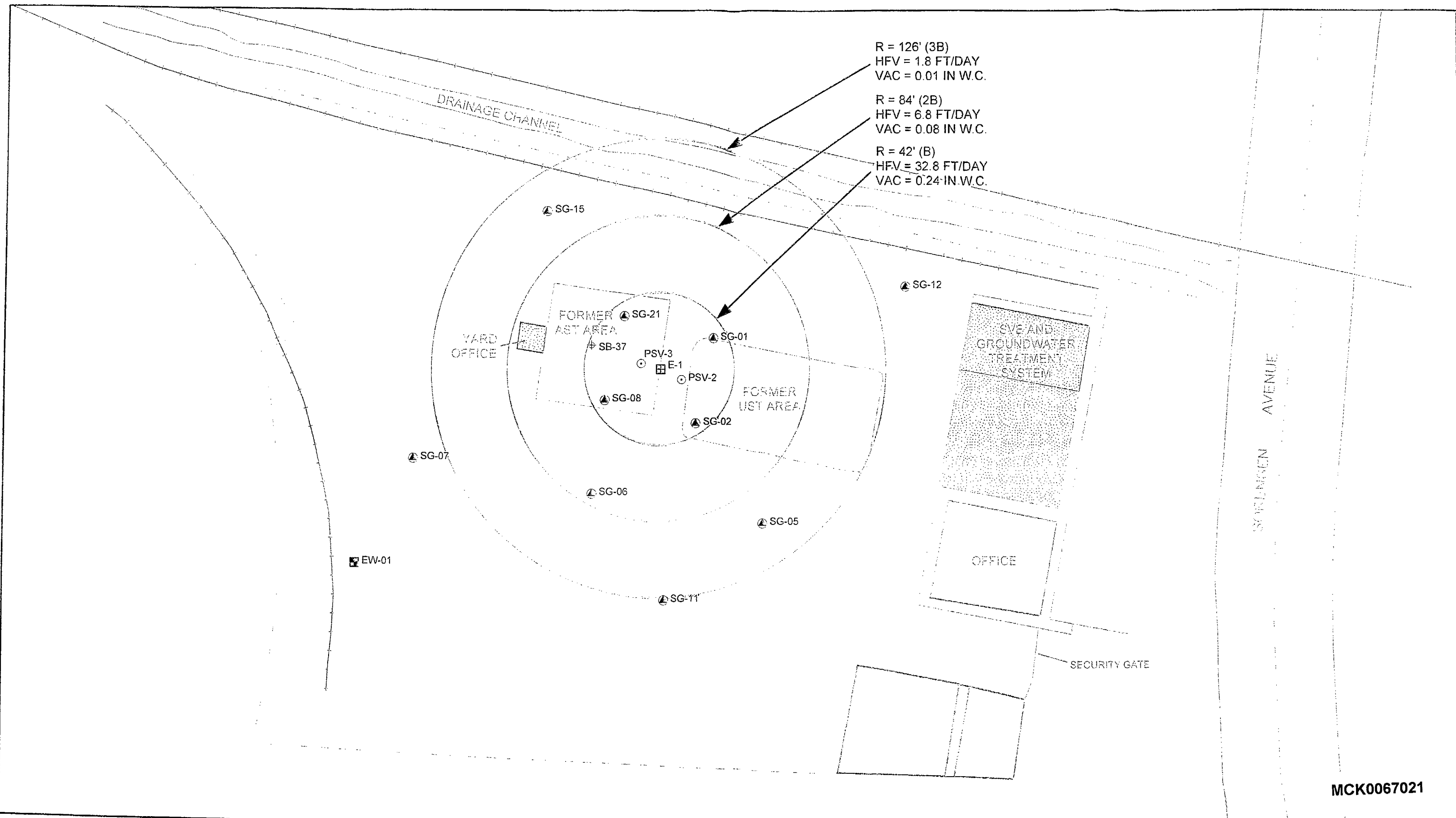
DOCUMENT NO.

DATE: FEBRUARY 2007

FIGURE 4

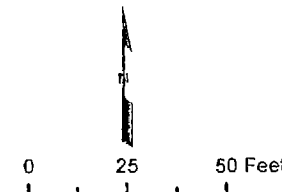
**CONCENTRATIONS OF VOCs IN SOIL
PRIOR TO REMEDIATION - CROSS-SECTION A-A'**

FORMER MCKESSON CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA



Legend

- MW-01 Sample Location and Name
- HFV = Horizontal Flow Velocity
 VAC = Observed Vacuum Response
 The SVE system operated at a flow rate of 25 scfm
 NOTE: Base map adapted from site plans prepared by Geomatrix (2001)
- Groundwater Monitoring Well
- Groundwater Extraction Well
- Vapor Extraction Well
- Soil Gas Sample Location
- Radial Distance of B, 2B, and 3B (B = Leakage Factor)
- Concrete Surfacing
- Building
- Cyclone Fence
- Railroad Track



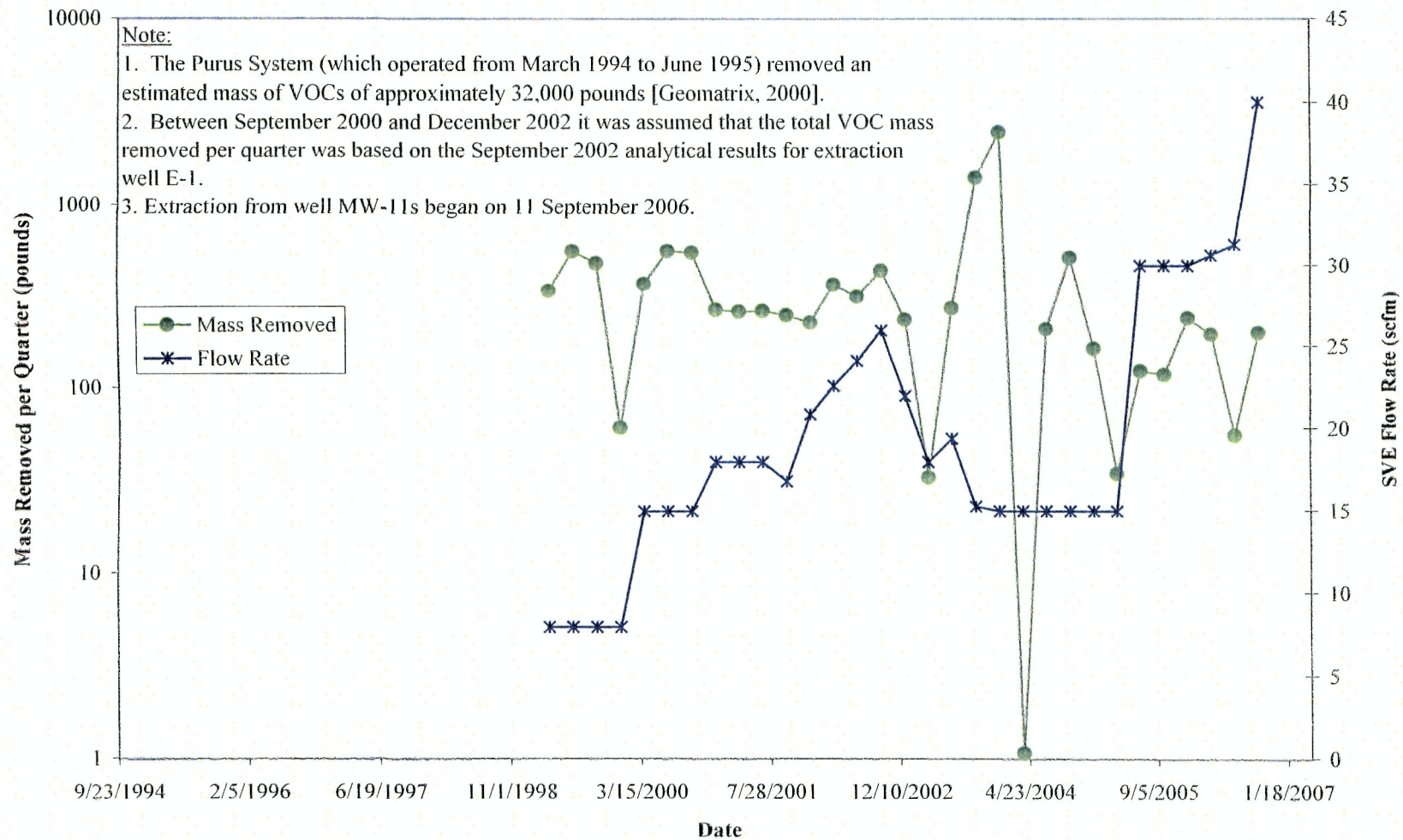
Geosyntec consultants

Project No. HA0620-15
 Document No.
 February 2007

Figure 5

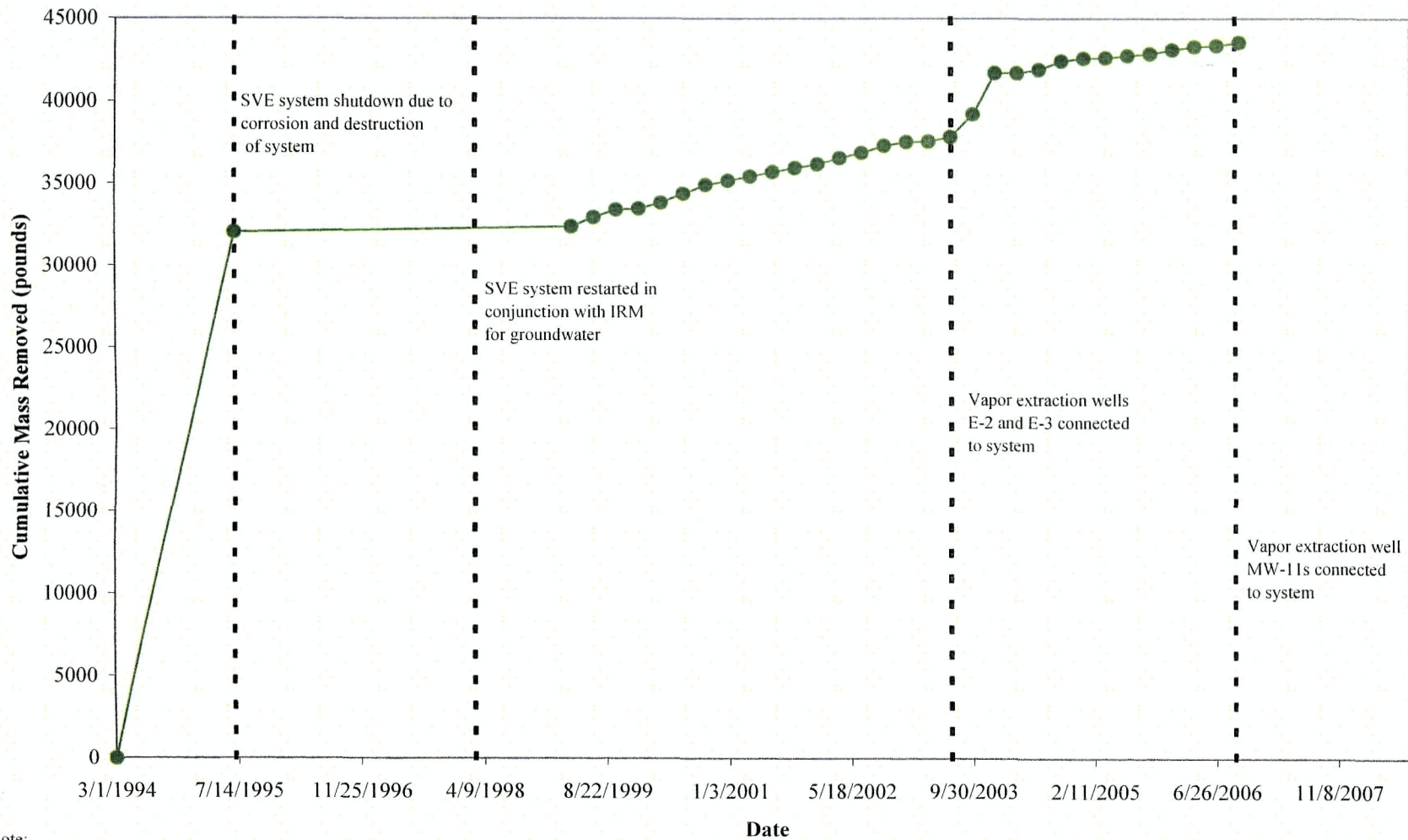
ESTIMATED ROI FOR E-1 - 2001
 Former McKesson Chemical Company
 Santa Fe Springs, California

Figure 6
Estimated Mass of VOCs Removed per Quarter by SVE System
Former McKesson Chemical Company
Santa Fe Springs, California



MCK0067022

Figure 7
Cumulative Mass of VOCs Removed by SVE System
Former McKesson Chemical Company
Santa Fe Springs, California



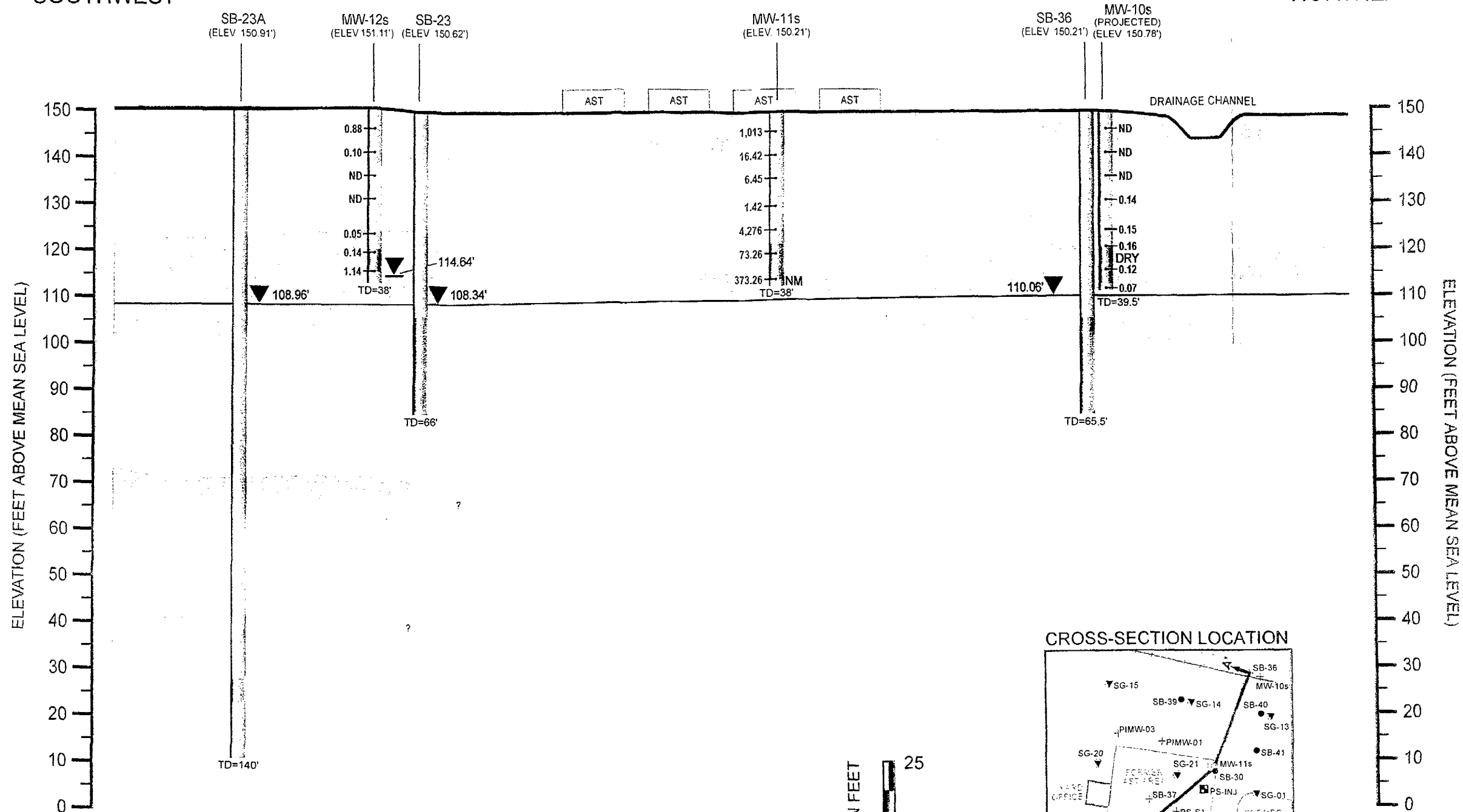
Note:

1. The Purus System (which operated from March 1994 to June 1995) removed an estimated mass of VOCs of approximately 32,000 pounds [Geomatrix, 2000].
2. Between September 2000 and December 2002 it was assumed that the total VOC mass removed per quarter was based on the September 2002 analytical results for extraction well E-1.

MCK0067023

A
SOUTHWEST

A'
NORTHEAST



LEGEND



SP - SW
SM - SC
ML - CL



Well Casing
Well Screen Interval

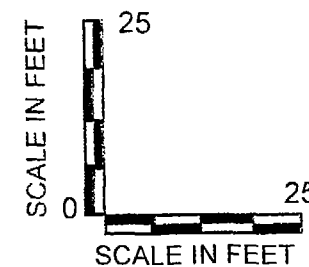


Groundwater Elevation Measured in Feet MSL- September 2006

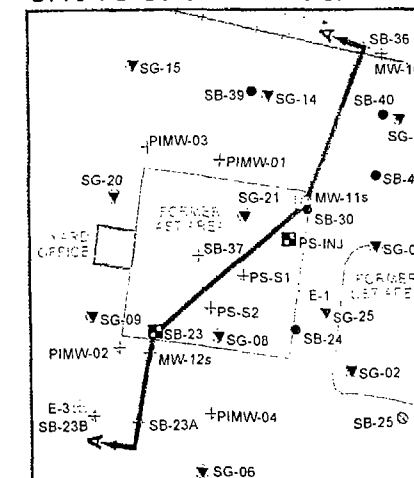


Total VOC Concentration in mg/kg (milligrams per kilogram)
Soil Samples Collected in September 2003.

AST - Above Ground Storage Tank
ND - Not Detected
NM - Not Measured
TD - Total Depth



CROSS-SECTION LOCATION



MCK0067024

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PROJECT NO. HA0620-13
DOCUMENT NO.
DATE: FEBRUARY 2007

FIGURE 8

CONCENTRATIONS OF VOCs IN SOIL IN 2003
CROSS-SECTION A-A'
FORMER MCKESSON CHEMICAL COMPANY
SANTA FE SPRINGS, CALIFORNIA

Appendix A

MCK0067025

APPENDIX A
SOIL ANALYTICAL DATA

TABLE 17a. SUMMARY OF SOIL ANALYSIS - SELECTED SOIL IONS, METALS AND pH

Location ID	Sample Depth (ft)	Date Collected	Chloride	Fluoride	Nitrate as Nitrogen	Sulfate	pH	Iron	Potassium	Manganese	Sodium	Zinc
MW-01	23.0	6/12/90	<20	19	0.70	<100	8.2	25200	5600	655	397	65.0
MW-01	42.0	6/12/90	<20	5	1.2	<100	8.4	27600	3040	640	346	65.1
MW-02	23.0	6/12/90	<20	<5	0.50	<100	8.9	6780	579	320	222	16.9
MW-02	45.5	6/12/90	<20	<5	6.6	<100	8.0	26200	2020	472	270	55.0
MW-03	23.0	6/12/90	<20	<5	1.0	<100	8.1	11700	1450	189	201	27.8
MW-03	41.0	6/12/90	<20	15	0.70	<100	7.7	23200	3780	676	228	50.1
SB-01	36.0-36.5	6/18/90	<20	<5	15.3	<100	8.7	18450	NA	329	NA	48.7
SB-01	41.0-41.5	6/18/90	<20	<5	50.7	<100	8.2	29780	NA	418	NA	63.3
SB-02	20.5-21	6/19/90	100	<5	<2.6	<100	7.7	12700	1240	141	196	42.7
SB-02	41-41.5	6/19/90	<20	<5	<2.6	<100	7.6	26910	3550	309	342	59.6
SB-04	26	6/26/90	73.9	<5	0.8	<100	7.7	24740	4780	488	374	62.1
SB-04	46	6/26/90	52.2	<5	0.5	<100	7.9	32070	2190	651	329	61.2
SB-05	33.5	6/27/90	94.9	<5	0.7	<100	8.0	33240	4450	457	408	61.2
SB-05	43.5	6/27/90	84.8	<5	0.8	<100	7.6	18200	2750	363	260	40.4
SB-06	26	6/29/90	<5	<5	0.8	<100	7.4	6680	941	95.2	151	31.1
SB-06	46	6/29/90	<5	<5	0.5	<100	8.0	19170	2050	160	274	45.6
SB-07	26	6/29/90	<5	<5	0.8	<100	7.4	12520	1400	275	165	54.7
SB-07	46	6/29/90	395	<5	0.5	<100	7.4	13640	1220	232	219	46.8
SB-08	26	6/29/90	<5	<5	1.0	<100	7.5	7740	960	126	181	38.3
SB-08	42.5	6/29/90	<5	6	0.8	<100	7.7	20350	2900	313	234	53.7
SB-09	21	6/29/90	<5	<5	2.0	<100	7.6	8790	1250	208	140	39.0
SB-09	41	6/29/90	<5	<5	1.0	<100	7.5	22410	3680	1000	255	70.0
SB-10	30.5-31	6/22/90	100	13	8.4	257	7.7	26430	4320	521	424	78.1
SB-10	46-46.5	6/22/90	<20	<5	<2.6	<100	7.6	9140	1490	102	178	32.2
SB-11	26-26.5	6/22/90	<20	<5	<2.6	<100	7.9	26400	4980	559	396	78.1
SB-11	41-41.5	6/22/90	<20	<5	<2.6	<100	7.9	23920	4460	209	328	69.2
SB-12	20-20.5	6/20/90	<20	<5	<2.6	<100	7.7	8810	1290	98.0	168	32.9
SB-12	30.5-31	6/20/90	<20	<5	<2.6	<100	7.9	30120	3750	597	407	87.3
SB-12	41-41.5	6/20/90	<20	<5	<2.6	<100	7.9	23710	3160	459	307	63.4
SB-14	26-26.5	6/21/90	<20	8	<2.6	<100	8.0	25250	4830	545	367	71.9
SB-14	41-41.5	6/21/90	<20	8	<2.6	<100	8.1	23260	2920	642	381	74.7
SB-15	26-26.5	6/21/90	<20	<5	<2.6	172	7.4	26030	4730	606	333	121

- Notes: 1. All values in milligrams per kilogram (mg/kg), except pH (units).
2. Compounds shown are those detected at one or more sample locations.
3. See Appendix for laboratory data reports.
4. NA = Not Analyzed.

MCK0067027

TABLE 17a. SUMMARY OF SOIL ANALYSIS - SELECTED SOIL IONS, METALS AND pH

Location ID	Sample Depth (ft)	Date Collected	Nitrate as				pH	Iron	Potassium	Manganese	Sodium	Zinc
			Chloride	Fluoride	Nitrogen	Sulfate						
SB-15	41-41.5	6/21/90	<20	<5	<2.6	<100	7.7	26490	3910	607	324	70.6
SB-16	6	7/02/90	<5	<5	3.0	5620	4.2	10360	999	622	154	36.9
SB-16	21	7/02/90	<5	<5	0.6	239	6.3	24620	3060	233	268	87.8
SB-17	1.5	7/03/90	12.2	19	1.0	8900	4.4	20390	3180	598	945	69.7
SB-17	41	7/03/90	1000	6	0.7	<100	7.8	28650	4570	494	320	71.2
SB-18	1.5	7/03/90	428	55	6.5	6370	8.4	19290	3800	312	2860	48.9
SB-18	41	7/03/90	<5	8	1.0	<100	8.1	21760	4300	317	267	65.0
SB-19	26	6/26/90	51.3	<5	0.7	<100	8.2	24220	4390	606	350	68.4
SB-19	41	6/26/90	<5	9	0.8	<100	8.2	22300	4180	312	278	50.0
SB-20	11	7/13/90	399	<5	128	139	7.9	18020	2990	587	289	51.4
SB-20	20.5	7/13/90	184	<5	91.8	<100	7.7	8030	1070	421	183	23.4
SB-20	41	7/13/90	<5	<5	78.8	<100	8.3	22900	3270	337	321	70.2
SB-21	6	7/05/90	424	7	4.0	303	8.0	27770	2650	298	574	59.9
SB-21	36	7/05/90	<5	<5	3.6	<100	7.9	30430	5520	725	246	59.8
SB-33	1.5-2.0	1/23/91	540	122	32	1730	10	17800	8380	360	4730	59.4
SB-33	10.0-10.5	1/23/91	79.3	10	8.6	254	7.7	22800	3680	940	268	56.6
SB-33	15.0-15.5	1/23/91	30	<5	6.0	<100	7.9	8770	1240	143	162	25.7
SB-34	5.0-5.5	1/23/91	110	11.3	2.8	9270	4.3	23200	3980	250	631	170
SB-34	10.0-10.5	1/23/91	322	9.3	3.5	741	7.6	20000	3190	738	516	48.8
SB-34	15.0-15.5	1/23/91	1170	<5	18	179	7.2	25000	4580	743	380	60.3
SB-35	1.5-2.0	1/23/91	891	6.0	16	6400	8.2	23100	3990	398	3640	61.2
SB-35	10.0-10.5	1/23/91	58	7.1	14	174	8.0	23200	3620	875	365	54.2
SB-35	14.5-15.0	1/23/91	33	<5	9.0	119	7.9	10500	1360	157	181	170
SS-01	05	7/17/90	<5	15	77.6	<100	8.1	23400	3380	522	294	54.5
SS-01	1.0	7/17/90	24.5	11	144	<100	8.0	26150	3620	528	340	63.6
SS-02	0.5	7/18/90	<5	6	157	<100	7.4	28340	4090	428	319	555
SS-02	1.0	7/18/90	8.3	8	72.6	<100	7.1	26700	4050	294	286	913
SS-03	0.5	7/18/90	8.3	8	98.4	<100	7.8	24310	4110	494	316	117
SS-03	1.0	7/18/90	24.7	12	95.4	<100	7.8	24580	3190	416	306	801
SS-04	0.5	7/17/90	37.6	10	109	133	6.9	22990	4210	222	340	159
SS-04	1.0	7/17/90	12.5	13	75.5	<100	7.4	22800	4100	346	295	250

- Notes: 1. All values in milligrams per kilogram (mg/kg), except pH (units).
2. Compounds shown are those detected at one or more sample locations.
3. See Appendix for laboratory data reports.
4. NA = Not Analyzed.

TABLE 17b. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8240 COMPOUNDS
McKesson Corporation Property - Santa Fe Springs

Location ID	Sample Depth (ft)	Date Collected	1,1,1-Tri-chloro-ethane	Methylene Chloride	Tetra-chloro-ethene	Tri-chloro-ethene	1,1-Di-chloro-ethene	1,2-Di-chloro-ethene	Cis-1,2-Di-chloro-ethene	Trans-1,2-Dichloro-ethene	1,1-Di-chloro-ethane	1,2-Di-chloro-ethane	Benzene
MW-01	23.0	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
MW-01	42.0	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
MW-02	23.0	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
MW-02	45.5	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
MW-03	23.0	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
MW-03	41.0	6/12/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-01	36.0-36.5	6/18/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-01	41.0-41.5	6/18/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-02	20.5-21	6/19/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-02	41-41.5	6/19/90	0.1	<0.3	0.08	0.1	0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-03	31	7/06/90	0.16	0.92	0.25	0.50	0.20	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-03	21	7/06/90	<0.05	<0.3	<0.05	0.26	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-04	26	6/26/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-04	46	6/26/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-05	33.5	6/27/90	<0.05	3.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-05	43.5	6/27/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-06	26	6/29/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-06	46	6/29/90	0.9	<0.3	0.5	0.07	0.2	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-07	26	6/29/90	0.06	<0.3	0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-07	46	6/29/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-08	26	6/29/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-08	42.5	6/29/90	<0.05	<0.3	0.080	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-09	21	6/29/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-09	41	6/29/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-10	30.5-31	6/22/90	0.3	<0.3	0.7	0.3	0.2	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-10	46-46.5	6/22/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-11	26-26.5	6/22/90	<0.05	<0.3	TR<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-11	41-41.5	6/22/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-12	20-20.5	6/20/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-12	30.5-31	6/20/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-12	41-41.5	6/20/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05

- Notes: 1. All values in milligrams per kilogram (mg/kg)
2. Compounds shown are those detected at one or more sample locations.
3. See Appendix for laboratory data reports.
4. TR indicates Trace. NA = Not Analyzed.

MCK0067029

TABLE 17b. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Toluene	Ethyl Benzene	Total Xylenes	Acetone	4-Methyl-2-Pentanone (MIBK)	2-Butanone (MEK)	1,1,2,2-Tetrachloroethane	Carbon Tetrachloride	Chlorobenzene
MW-01	23.0	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
MW-01	42.0	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
MW-02	23.0	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
MW-02	45.5	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
MW-03	23.0	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
MW-03	41.0	6/12/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-01	36.0-36.5	6/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-01	41.0-41.5	6/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-02	20.5-21	6/19/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-02	41-41.5	6/19/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-03	31	7/06/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-03	21	7/06/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-04	26	6/26/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-04	46	6/26/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-05	33.5	6/27/90	0.1	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-05	43.5	6/27/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-06	26	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-06	46	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-07	26	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-07	46	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-08	26	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-08	42.5	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-09	21	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-09	41	6/29/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-10	30.5-31	6/22/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-10	46-46.5	6/22/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-11	26-26.5	6/22/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-11	41-41.5	6/22/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-12	20-20.5	6/20/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-12	30.5-31	6/20/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-12	41-41.5	6/20/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05

- Notes: 1. All values in milligrams per kilogram (mg/kg)
2. Compounds shown are those detected at one or more sample locations.
3. See Appendix for laboratory data reports.
4. TR indicates Trace. NA = Not Analyzed.

MCK0067030

SUMMARY OF SOIL ANALYSES - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	1,1,1-Trichloroethane	Methylene Chloride	Tetra-chloroethene	Tri-chloroethene	1,1-Di-chloroethene	1,2-Di-chloroethene	Cis-1,2-Di-chloroethene	Trans-1,2-Dichloroethene	1,1-Di-chloroethane	1,2-Di-chloroethane	Bei
SB-13	25.5-26	6/20/90	<0.05	3.9	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-13	41-41.5	6/20/90	<0.10	29	<0.10	0.6	<0.10	<0.10	NA	NA	<0.05	<0.05	<0.05
SB-14	26-26.5	6/21/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.10	7	<0.05
SB-14	41-41.5	6/21/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-15	26-26.5	6/21/90	<0.05	2.0	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-15	41-41.5	6/21/90	0.14	4.0	1.4	0.91	0.80	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-17A	41	1/25/91	0.1	<0.3	0.2	0.07	0.1	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-19	26	6/26/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-19	41	6/26/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-20	11	7/13/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-20	20.5	7/13/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-20	41	7/13/90	0.09	<0.3	0.2	0.07	0.1	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-21	21	7/05/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-21	31	7/05/90	<0.05	1.1	0.06	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-23	26	7/05/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-23	41	7/05/90	21	30	3.1	0.84	2.6	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-23A	30.5-31	1/25/91	<0.05	21	0.50	<0.05	0.2	NA	<0.05	<0.05	0.1	0.6	<0.05
SB-23A	128.8-129.	2/04/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	0.09	0.07	<0.05
SB-24	1	7/11/90	160	<7.5	33	3.5	<1.2	<1.2	NA	NA	<0.05	<0.05	<0.05
SB-24	21	7/11/90	530	<12.0	630	33	<2.0	<2.0	NA	NA	<1.2	<1.2	<0.05
SB-24	41	7/11/90	100	48	58	6	5	<1.0	NA	NA	<2.0	6.4	<0.05
SB-25	6	7/13/90	0.1	3.5	0.1	<0.10	<0.10	<0.10	NA	NA	<1.0	<1.0	<0.05
SB-25	21	7/13/90	<0.10	<0.6	<0.10	<0.10	<0.10	<0.10	NA	NA	0.3	0.2	<0.05
SB-25	41	7/13/90	<0.15	3.0	0.6	0.5	0.7	0.6	NA	NA	<0.15	0.3	<0.05
SB-26	21	7/16/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-26	26	7/16/90	0.2	3.8	0.07	0.07	<0.05	<0.05	NA	NA	0.1	<0.05	<0.05
SB-26	41	7/16/90	0.4	4.4	0.4	0.3	0.4	0.08	NA	NA	<0.05	<0.05	<0.05
SB-27	21	7/16/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SB-27	31	7/16/90	3.0	23	1	0.5	0.6	0.4	NA	NA	0.2	0.8	<0.05
SB-27	41	7/16/90	0.3	26	0.8	0.4	0.5	<0.20	NA	NA	<0.20	<0.20	<0.05
SB-30	1.5	7/12/90	3500	380	2900	60	<20.0	<20.0	NA	NA	<20.0	32	<20.0

- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates trace. NA = Not Analyzed.

MCK0067031

SUMMARY OF SOIL ANALYSES - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Toluene	Ethyl Benzene	Total Xylenes	Acetone	4 Methyl-2-Pentanone (MIBK)	2-Butanone (MEK)	1,1,2,2-Tetrachloroethane	Carbon Tetrachloride	Chlorobenzene
SB-11	25.5-26	6/20/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-13	41-41.5	6/20/90	<0.20	<0.10	<0.10	19	<1.00	9	<0.10	<0.10	<0.10
SB-14	26-26.5	6/21/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-14	41-41.5	6/21/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-15	26-26.5	6/21/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-15	41-41.5	6/21/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-17A	41	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-19	26	6/26/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-19	41	6/26/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-20	11	1/13/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-20	20.5	1/13/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-20	41	1/13/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-21	21	1/05/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-21	31	1/05/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-23	26	1/05/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-23	41	1/05/90	0.63	<0.05	<0.05	<1.0	TR<0.50	TR<1.0	<0.05	<0.05	<0.05
SB-23A	30.5-31	1/25/91	<0.1	<0.05	0.1	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-23A	128.8-129	2/04/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-24	1	1/11/90	18	<1.2	<1.2	<25.0	<12.5	<25.0	<1.2	<1.2	11
SB-24	21	1/11/90	130	31	160	120	<20.0	65	5.9	82	<2.0
SB-24	41	1/11/90	12	1.8	8.6	<20.0	<10.0	<20.0	<1.0	<1.0	<1.0
SB-25	6	1/13/90	0.1	<0.10	<0.10	19	<1.00	<2.0	<0.10	<0.10	<0.10
SB-25	21	1/13/90	<0.20	<0.10	<0.10	37	<1.00	2.4	<0.10	<0.10	<0.10
SB-25	41	1/13/90	0.3	<0.15	<0.15	3.5	<1.50	<3.0	<0.15	<0.15	<0.15
SB-26	21	1/16/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-26	26	1/16/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-26	41	1/16/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SB-27	21	1/16/90	<0.10	<0.05	<0.05	<1.0	<0.50	1.0	<0.05	<0.05	<0.05
SB-27	31	1/16/90	3.2	<0.12	0.4	<2.5	<1.2	4.6	<0.12	<0.12	<0.12
SB-27	41	1/16/90	1	<0.20	<0.20	<4.0	<2.00	2.2	<0.20	<0.20	<0.20
SB-30	1.5	1/12/90	110	50	90	<400	<200.0	<400	31	550	170

- Notes:
1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

MCK0067032

SUMMARY OF SOIL ANALYSES - EPA METHOD 8240 COMPOUNDS

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Location ID	Sample Depth (ft)	Date Collected	1,1,1-Trichloroethane	Methylene Chloride	Tetra-chloroethene	Tri-chloroethene	1,1-Di-chloroethene	1,2-Di-chloroethene	Cis-1,2-Di-chloroethene	Trans-1,2-Dichloroethene	1,1-Di-chloroethane	1,2-Di-chloroethane	Benzene
SB-30	21	7/12/90	190	120	1000	17	<6.0	<6.0	NA	NA	<6.0	<6.0	<6.0
SB-30	41	7/12/90	3.4	17	7.4	2.6	5.4	<0.10	NA	NA	<0.10	<0.10	<0.10
SB-36	15.0-15.5	1/23/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-36	24.5-25.0	1/23/91	33	<0.3	12	2	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-36	39.5-40.0	1/23/91	1.4	<0.3	0.87	0.1	0.32	NA	<0.05	<0.05	<0.05	2	<0.05
SB-36	45.0-45.5	1/23/91	<0.05	<0.3	1.4	0.2	0.35	NA	<0.05	<0.05	<0.05	0.07	<0.05
SB-37	1.0-1.5	1/25/91	1.6	11	1.5	0.4	0.58	NA	<0.05	<0.05	<0.05	0.09	<0.05
SB-37	5.0-5.5	1/25/91	0.3	6.3	5.0	<0.05	<0.05	NA	0.1	<0.05	0.2	0.2	<0.05
SB-37	9.5-10.0	1/25/91	0.5	4.9	0.3	0.1	<0.05	NA	<0.05	<0.05	0.63	0.2	<0.05
SB-37	14.5-15.0	1/25/91	<0.05	2.6	0.1	<0.05	<0.05	NA	<0.05	<0.05	0.1	0.2	<0.05
SB-37	19.5-20.0	1/25/91	0.1	1.8	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	0.2	0.07
SB-37	24.0-24.5	1/25/91	<0.05	0.66	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	0.1	<0.05
SB-38	5.0-5.5	1/25/91	0.4	0.55	0.93	0.1	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-38	15.0-15.5	1/25/91	0.3	1.8	2.1	0.1	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-38	19.5-20.0	1/25/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	0.06	<0.05
SB-38	24.5-25.0	1/25/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-38	29.5-30.0	1/25/91	1.6	11	1.5	0.4	0.58	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-38	34.5-35.0	1/25/91	1.5	5.7	1.9	0.4	0.77	NA	<0.05	0.63	0.2	0.2	<0.05
SB-38	40.0-40.5	1/25/91	2.2	5.4	1.7	0.4	0.82	NA	<0.05	<0.05	0.1	0.08	<0.05
SB-38	44.0-44.5	1/25/91	0.70	4.3	0.80	0.2	<0.05	NA	<0.05	<0.05	0.2	0.08	<0.05
SB-39	9.5-10.0	1/25/91	0.2	2.0	0.1	<0.05	<0.05	NA	<0.05	0.4	0.4	<0.05	<0.05
SB-39	5-5.5	1/25/91	0.3	<0.3	0.3	<0.05	<0.05	NA	<0.05	<0.05	<0.05	0.1	<0.05
SB-40	5.0-5.5	1/25/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-40	9.5-10.0	1/25/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-41	9.5-10.0	1/25/91	<0.05	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-41	4.5-5.0	1/25/91	0.1	<0.3	<0.05	<0.05	<0.05	NA	<0.05	<0.05	<0.05	<0.05	<0.05
SB-42	9.5-10.0	1/25/91	<0.25	<1.5	<0.25	<0.25	<0.25	NA	0.13	<0.05	<0.05	<0.05	<0.05
SB-42	5.0-5.5	1/25/91	<0.25	<1.5	<0.25	<0.25	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25
SS-01	05	7/17/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.25	<0.25	<0.25
SS-01	1.0	7/17/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SS-02	0.5	7/18/90	0.08	<0.3	0.71	0.07	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05

- Notes:
1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

MCK0067033

TABLE 17b. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Toluene	Ethyl Benzene	Total Xylenes	Acetone	4-Methyl-2-Pentanone (MIBK)	2-Butanone (MEK)	1,1,2,2-Tetrachloroethane	Carbon Tetra-chloride	Chloro-benzene
SB-30	21	7/12/90	83	15	60	<120	<60.0	<120	<6.0	30	<6.0
SB-30	41	7/12/90	0.3	<0.10	<0.10	<2.0	<1.00	<2.0	<0.10	0.5	<0.10
SB-36	15.0-15.5	1/23/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-36	24.5-25.0	1/23/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-36	39.5-40.0	1/23/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-36	45.0-45.5	1/23/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	1.0-1.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	5.0-5.5	1/25/91	<0.1	<0.05	0.09	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	9.5-10.0	1/25/91	0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	14.5-15.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	19.5-20.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-37	24.0-24.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	5.0-5.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	15.0-15.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	19.5-20.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	24.5-25.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	29.5-30.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	34.5-35.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	40.0-40.5	1/25/91	<0.1	<0.05	0.06	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-38	44.0-44.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-39	9.5-10.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-39	5-5.5	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-40	5.0-5.5	1/25/91	<0.1	<0.05	<0.05	27	<0.5	4.5	<0.05	<0.05	<0.05
SB-40	9.5-10.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-41	9.5-10.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-41	4.5-5.0	1/25/91	<0.1	<0.05	<0.05	<1	<0.5	<1	<0.05	<0.05	<0.05
SB-42	9.5-10.0	1/25/91	<0.5	<0.25	<0.25	49	<2.5	6.0	<0.25	<0.25	<0.25
SB-42	5.0-5.5	1/25/91	<0.5	<0.25	<0.25	95	<2.5	13	<0.25	<0.25	<0.25
SS-01	05	7/17/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-01	1.0	7/17/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-02	0.5	7/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05

- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

TABLE 17b. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	1,1,1-Tri-chloro-ethane	Methylene Chloride	Tetra-chloro-ethene	Tri-chloro-ethene	1,1-Di-chloro-ethene	1,2-Di-chloro-ethene	Cis-1,2-Di-chloro-ethene	Trans-1,2-Dichloro-ethene	1,1-Di-chloro-ethane	1,2-Di-chloro-ethane	Benzen
SS-02	1.0	7/18/90	<0.05	<0.3	0.1	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SS-03	0.5	7/18/90	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SS-03	1.0	7/18/90	<0.05	<0.3	1.0	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SS-04	0.5	7/17/90	<0.05	<0.3	1.9	<0.05	<0.05	<0.05	NA	NA	<0.05	<0.05	<0.05
SS-04	1.0	7/17/90	<0.25	<1.5	61	<0.25	<0.25	<0.25	NA	NA	<0.25	<0.25	<0.25

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- Notes:
1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

TABLE 17b. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8240 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Toluene	Ethyl Benzene	Total Xylenes	Acetone	4-Methyl-2-Pentanone (MIBK)	2-Butanone (MEK)	1,1,2,2-Tetrachloroethane	Carbon Tetra-chloride	Chloro-benzene
SS-02	1.0	7/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-03	0.5	7/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-03	1.0	7/18/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-04	0.5	7/17/90	<0.10	<0.05	<0.05	<1.0	<0.50	<1.0	<0.05	<0.05	<0.05
SS-04	1.0	7/17/90	<0.50	<0.25	<0.25	<5.0	<2.5	<5.0	<0.25	<0.25	<0.25

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- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

TABLE 17c. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8270 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	2-Methyl-naphthalene	Benzyl Alcohol	Bis(2-ethyl-beryl)-phthalate	Naphthalene
MW-01	23.0	6/12/90	<0.17	<0.17	<0.17	<0.17
MW-01	42.0	6/12/90	<0.17	<0.17	<0.17	<0.17
MW-02	23.0	6/12/90	<0.17	<0.17	<0.17	<0.17
MW-02	45.5	6/12/90	<0.17	<0.17	<0.17	<0.17
MW-03	23.0	6/12/90	<0.17	<0.17	<0.17	<0.17
MW-03	41.0	6/12/90	<0.17	<0.17	<0.17	<0.17
SB-01	36.0-36.5	6/18/90	<0.17	<0.17	<0.17	<0.17
SB-01	41.0-41.5	6/18/90	<0.17	<0.17	<0.17	<0.17
SB-02	20.5-21	6/19/90	<0.17	<0.17	<0.17	<0.17
SB-02	41-41.5	6/19/90	<0.17	<0.17	<0.17	<0.17
SB-03	31	7/06/90	<0.17	<0.17	<0.17	<0.17
SB-03	21	7/06/90	<0.17	<0.17	<0.17	<0.17
SB-04	26	6/26/90	<0.17	<0.17	<0.17	<0.17
SB-04	46	6/26/90	<0.17	<0.17	<0.17	<0.17
SB-05	33.5	6/27/90	<0.17	<0.17	<0.17	<0.17
SB-05	43.5	6/27/90	<0.17	<0.17	<0.17	<0.17
SB-06	26	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-06	46	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-07	26	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-07	46	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-08	26	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-08	42.5	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-09	21	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-09	41	6/29/90	<0.17	<0.17	<0.17	<0.17
SB-10	30.5-31	6/22/90	<0.17	<0.17	<0.17	<0.17
SB-10	46-46.5	6/22/90	<0.17	<0.17	<0.17	<0.17
SB-11	26-26.5	6/22/90	<0.17	<0.17	<0.17	<0.17
SB-11	41-41.5	6/22/90	<0.17	<0.17	<0.17	<0.17
SB-12	20-20.5	6/20/90	<0.17	<0.17	<0.17	<0.17
SB-12	30.5-31	6/20/90	<0.17	<0.17	<0.17	<0.17
SB-12	41-41.5	6/20/90	<0.17	<0.17	<0.17	<0.17
SB-13	25.5-26	6/20/90	<0.17	<0.17	<0.17	<0.17
SB-13	41-41.5	6/20/90	<0.17	<0.17	<0.17	<0.17
SB-14	26-26.5	6/21/90	<0.17	<0.17	<0.17	<0.17
SB-14	41-41.5	6/21/90	<0.17	<0.17	<0.17	<0.17
SB-15	26-26.5	6/21/90	<0.17	<0.17	<0.17	<0.17
SB-15	41-41.5	6/21/90	<0.17	<0.17	<0.17	<0.17
SB-19	26	6/26/90	<0.17	<0.17	<0.17	<0.17
SB-19	41	6/26/90	<0.17	<0.17	<0.17	<0.17
SB-20	11	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-20	20.5	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-20	41	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-21	21	7/05/90	<0.17	<0.17	<0.17	<0.17
SB-21	31	7/05/90	<0.17	<0.17	<0.17	<0.17
SB-23	26	7/05/90	<0.17	<0.17	<0.17	<0.17
SB-23	41	7/05/90	<0.17	<0.17	<0.17	<0.17
SB-24	1	7/11/90	4.3	<0.17	<0.17	6.9

- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

MCK0067037

TABLE 17c. SUMMARY OF SOIL ANALYSIS - EPA METHOD 8270 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	2-Methyl-naphthalene	Benzyl Alcohol	Bis(2-ethyl-beryl)-phthalate	Naphthalene
SB-24	21	7/11/90	1.0	<0.17	<0.17	2.7
SB-24	41	7/11/90	<0.17	<0.17	<0.17	TR<0.17
SB-25	6	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-25	21	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-25	41	7/13/90	<0.17	<0.17	<0.17	<0.17
SB-26	21	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-26	26	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-26	41	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-27	21	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-27	31	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-27	41	7/16/90	<0.17	<0.17	<0.17	<0.17
SB-30	1.5	7/12/90	<0.17	<0.17	<0.17	0.24
SB-30	21	7/12/90	0.31	1.2	<0.17	0.40
SB-30	41	7/12/90	<0.17	<0.17	<0.17	<0.17
SS-01	05	7/17/90	<0.17	<0.17	<0.17	<0.17
SS-01	1.0	7/17/90	<0.17	<0.17	<0.17	<0.17
SS-02	0.5	7/18/90	<0.85	<0.85	<0.85	<0.85
SS-02	1.0	7/18/90	<0.17	<0.17	<0.17	<0.17
SS-03	0.5	7/18/90	<0.17	<0.17	1.9	<0.17
SS-03	1.0	7/18/90	<0.17	<0.17	3.1	<0.17
SS-04	0.5	7/17/90	<0.17	<0.17	1.9	<0.17
SS-04	1.0	7/17/90	<0.17	<0.17	4.5	<0.17

- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. TR indicates Trace. NA = Not Analyzed.

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TABLE 17d. SUMMARY OF SOIL ANALYSIS - EPA METHOD 418.1 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Petroleum Hydrocarbons IR
MW-01	23.0	6/12/90	<1
MW-01	42.0	6/12/90	2
MW-02	23.0	6/12/90	<1
MW-02	45.5	6/12/90	1
MW-03	23.0	6/12/90	<1
MW-03	41.0	6/12/90	7
SB-01	36.0-36.5	6/18/90	3
SB-01	41.0-41.5	6/18/90	2
SB-02	20.5-21	6/19/90	<1
SB-02	41-41.5	6/19/90	1
SB-03	31	7/06/90	<1
SB-03	21	7/06/90	<2
SB-04	26	6/26/90	<1
SB-04	46	6/26/90	<1
SB-05	33.5	6/27/90	2
SB-05	43.5	6/27/90	<1
SB-06	26	6/29/90	3
SB-06	46	6/29/90	2
SB-07	26	6/29/90	9
SB-07	46	6/29/90	3
SB-08	26	6/29/90	2
SB-08	42.5	6/29/90	2
SB-09	21	6/29/90	<1
SB-09	41	6/29/90	1
SB-10	30.5-31	6/22/90	<1
SB-10	46-46.5	6/22/90	1
SB-11	26-26.5	6/22/90	<1
SB-11	41-41.5	6/22/90	<1
SB-12	20-20.5	6/20/90	2
SB-12	30.5-31	6/20/90	<1
SB-12	41-41.5	6/20/90	<1
SB-13	25.5-26	6/20/90	<1
SB-13	41-41.5	6/20/90	2
SB-14	26-26.5	6/21/90	<1
SB-14	41-41.5	6/21/90	<1
SB-15	26-26.5	6/21/90	1
SB-15	41-41.5	6/21/90	<1
SB-19	26	6/26/90	<1
SB-19	41	6/26/90	<1
SB-20	11	7/13/90	<1
SB-20	20.5	7/13/90	<1
SB-20	41	7/13/90	1
SB-21	21	7/05/90	2
SB-21	31	7/05/90	<1
SB-23	26	7/05/90	<1
SB-23	41	7/05/90	5

MCK0067039

- Notes: 1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.

TABLE 17d. SUMMARY OF SOIL ANALYSIS - EPA METHOD 418.1 COMPOUNDS

Location ID	Sample Depth (ft)	Date Collected	Petroleum Hydrocarbons IR
SB-24	1	7/11/90	3100
SB-24	21	7/11/90	600
SB-24	41	7/11/90	30
SB-25	6	7/13/90	1
SB-25	21	7/13/90	<1
SB-25	41	7/13/90	<1
SB-26	21	7/16/90	<1
SB-26	26	7/16/90	<1
SB-26	41	7/16/90	<1
SB-27	21	7/16/90	<1
SB-27	31	7/16/90	9
SB-27	41	7/16/90	1
SB-30	1.5	7/12/90	170
SB-30	21	7/12/90	140
SB-30	41	7/12/90	<1
SS-01	05	7/17/90	14
SS-01	1.0	7/17/90	13
SS-02	0.5	7/18/90	1400
SS-02	1.0	7/18/90	430
SS-03	0.5	7/18/90	200
SS-03	1.0	7/18/90	710
SS-04	0.5	7/17/90	290
SS-04	1.0	7/17/90	840

MCK0067040

- Notes:
1. All values in milligrams per kilogram (mg/kg)
 2. Compounds shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.

Table A-1
Soil Analytical Data
Former McKesson Chemical Company
Santa Fe Springs, California
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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2,4-TCB
E-2	2/26/2003	5	18	5.0	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	28	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-2	2/26/2003	29	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	190	<5.0	<5.0	<5.0
E-3	2/26/2003	5	91	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-3	2/26/2003	10	23	7.1	<5.0	<5.0	<5.0	<5.0	5.1	<5.0	5.4	<5.0
E-3	2/26/2003	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-3	2/26/2003	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-3	2/26/2003	23.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-3	2/26/2003	24	31	17	13	<5.0	<5.0	<5.0	6.9	11	12	<5.0
E-3	2/26/2003	26	33	23	29	<5.0	<5.0	<5.0	16	14	30	<5.0
E-4	2/27/2003	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	26	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
E-4	2/27/2003	27	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	5	5.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2,4-TCB
MW-06	2/24/2003	25	<5.0	<5.0	7.3	<5.0	<5.0	<5.0	9.7	<5.0	<5.0	<5.0
MW-06	2/24/2003	28	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	29	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	210	<5.0	<5.0	<5.0
MW-06	2/24/2003	35	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	240	<5.0	<5.0	<5.0
MW-06	2/24/2003	40	<5.0	<5.0	6.6	<5.0	<5.0	<5.0	600	<5.0	5.3	<5.0
MW-06	2/24/2003	44	<50	<50	2,500	<50	<50	<50	1,300	140	210	<50
MW-06	2/24/2003	50	<5.0	<5.0	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-06	2/24/2003	55	<5.0	<5.0	20	<5.0	<5.0	<5.0	16	<5.0	<5.0	<5.0
MW-07	2/25/2003	5	16	<5.0	5.3	<5.0	<5.0	<5.0	5.4	<5.0	<5.0	<5.0
MW-07	2/25/2003	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-07	2/25/2003	15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-07	2/25/2003	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-07	2/25/2003	25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-07	2/25/2003	27	<5.0	<5.0	11	<5.0	<5.0	<5.0	59	<5.0	6.4	<5.0
MW-07	2/25/2003	30	<5.0	<5.0	<5.0	<5.0	<5.0	5.1	230	<5.0	79	<5.0
MW-07	2/25/2003	35	<5.0	<5.0	<5.0	<5.0	<5.0	8.2	400	<5.0	25	<5.0
MW-07	2/25/2003	40	<5.0	<5.0	5.5	<5.0	<5.0	9.3	600	<5.0	40	<5.0
MW-07	2/25/2003	45	350	200	1,400	6.0	<5.0	16	620	440	600	<5.0
MW-07	2/25/2003	46	98	72	450	<5.0	<5.0	<5.0	390	190	140	<5.0
MW-07	2/25/2003	50	10	16	150	<5.0	<5.0	<5.0	59	50	<5.0	<5.0
MW-07	2/25/2003	55	9.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-07	2/25/2003	60	5.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-08s	9/22/2003	5	0.013	0.0053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-08s	9/22/2003	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-08s	9/22/2003	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

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MW-11s	9/24/2003	13	0.54	0.0062	<0.005	<0.005	0.14	<0.005	<0.005	<0.005	<0.005	<0.005
MW-11s	9/24/2003	21	0.0087	<0.005	<0.005	<0.005	0.0076	<0.005	<0.005	<0.005	<0.005	<0.005
MW-11s	9/24/2003	26	2500	120	<10	<10	1,600	<10	<10	<10	<10	<10
MW-11s	9/24/2003	31	18	1.9	<0.05	<0.05	8.1	<0.05	<0.05	<0.05	0.64	<0.05

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Table A-1
Soil Analytical Data
Former McKesson Chemical Company
Santa Fe Springs, California
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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2,4-TCB
MW-11s	9/24/2003	36.5	240	14	<0.5	<0.5	59	<0.5	<0.5	2.9	<0.5	<0.5
MW-12s	9/23/2003	5	0.72	0.021	0.025	<0.005	0.11	<0.005	<0.005	0.0086	<0.005	<0.005
MW-12s	9/23/2003	10	0.07	0.0075	0.01	<0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005
MW-12s	9/23/2003	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-12s	9/23/2003	20	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-12s	9/23/2003	27.5	0.025	0.013	0.0078	<0.005	<0.005	<0.005	0.0069	<0.005	<0.005	<0.005
MW-12s	9/23/2003	31.5	0.056	0.025	0.02	<0.005	<0.005	<0.005	0.014	0.021	<0.005	<0.005
MW-12s	9/23/2003	35.5	0.47	0.086	0.39	<0.005	0.069	<0.005	0.087	0.33	0.054	<0.005

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Table A-1
Soil Analytical Data
Former McKesson Chemical Company
Santa Fe Springs, California
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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			1,3,5-TCB	Acetone	Benzene	Chloro-benzene	Chloroform	Ethyl-benzene	Freon 11	MEK	Methylene Chloride	MIK
E-2	2/26/2003	5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	10	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	15	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	20	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	25	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	28	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-2	2/26/2003	29	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	10	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	15	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	20	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	23.5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	24	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-3	2/26/2003	26	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	10	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	15	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	20	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	25	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	26	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
E-4	2/27/2003	27	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	10	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	15	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	20	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50

Table A-1
Soil Analytical Data
Former McKesson Chemical Company
Santa Fe Springs, California
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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			1,3,5-TCB	Acetone	Benzene	Chloro-benzene	Chloroform	Ethyl-benzene	Freon 11	MEK	Methylene Chloride	MIK
MW-06	2/24/2003	25	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	28	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	29	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	35	7.0	890	5.5	5.4	<5.0	100	<5.0	3,900	<50	320
MW-06	2/24/2003	40	6.5	2,800	60	5.8	<5.0	120	<5.0	1,300	<50	72
MW-06	2/24/2003	44	<50	3,400	<20	<50	<50	150	<50	<500	<500	<500
MW-06	2/24/2003	50	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-06	2/24/2003	55	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	5	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	10	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	15	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	20	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	25	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	27	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	30	<5.0	<50	2.4	<5.0	<5.0	9.8	<5.0	<50	<50	<50
MW-07	2/25/2003	35	6.5	35,000	18	<5.0	<5.0	98	<5.0	4,000	<50	220
MW-07	2/25/2003	40	10	4,600	32	<5.0	<5.0	140	<5.0	2,300	<50	<50
MW-07	2/25/2003	45	6.6	52,000	43	<5.0	16	44	<5.0	3,900	<50	54
MW-07	2/25/2003	46	<5.0	1,200	6.5	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	50	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	55	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-07	2/25/2003	60	<5.0	<50	<2.0	<5.0	<5.0	<2.0	<5.0	<50	<50	<50
MW-08s	9/22/2003	5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-08s	9/22/2003	10	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-08s	9/22/2003	15	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05

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Soil Analytical Data
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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			1,3,5-TCB	Acetone	Benzene	Chloro-benzene	Chloroform	Ethyl-benzene	Freon 11	MEK	Methylene Chloride	MIK
MW-08s	9/22/2003	20	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-08s	9/22/2003	26.5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-08s	9/22/2003	30	<0.005	0.51	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-08s	9/22/2003	35	<0.005	0.93	0.0082	<0.005	<0.005	0.034	<0.005	1.8	<0.05	0.043
MW-09s	9/23/2003	5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	10	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	15	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	20	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	25	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	30	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-09s	9/23/2003	35	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	10	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	15	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	20	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	26.5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	30	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	35	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-10s	9/23/2003	39	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-11s	9/24/2003	5	0.58	<2.5	<0.1	<0.25	<0.25	0.5	<0.25	<2.5	7	<2.5
MW-11s	9/24/2003	10	0.012	5.3	<0.002	<0.005	<0.005	0.0089	0.0061	0.072	1.6	<0.05
MW-11s	9/24/2003	15	0.11	4.8	<0.002	<0.005	<0.005	0.0073	<0.005	0.39	0.046	<0.05
MW-11s	9/24/2003	21	<0.005	1.4	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-11s	9/24/2003	26	<10	<100	<4	<10	<10	12	<10	<100	<100	<100
MW-11s	9/24/2003	31	<0.05	23	<0.02	<0.05	<0.05	<0.02	<0.05	6.0	13	1.7

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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)									
			1,3,5-TCB	Acetone	Benzene	Chloro-benzene	Chloroform	Ethyl-benzene	Freon 11	MEK	Methylene Chloride	MIK
MW-11s	9/24/2003	36.5	<0.5	14	<0.2	<0.5	<0.5	<0.2	<0.5	<5	39	<5
MW-12s	9/23/2003	5	<0.005	<0.05	<0.002	<0.005	<0.005	<0.002	<0.005	<0.05	<0.05	<0.05
MW-12s	9/23/2003	10	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.05	<0.005
MW-12s	9/23/2003	15	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.05	<0.005
MW-12s	9/23/2003	20	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.05	<0.005
MW-12s	9/23/2003	27.5	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.05	<0.005
MW-12s	9/23/2003	31.5	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.05	<0.005
MW-12s	9/23/2003	35.5	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	0.032	<0.005	<0.05	<0.005

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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)						
			Naphthalene	n-Propyl benzene	p-Cymene	Toluene	Vinyl Chloride	mp-Xylenes	o-Xylenes
E-2	2/26/2003	5	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	10	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	15	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	20	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	25	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	28	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-2	2/26/2003	29	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	5	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	10	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	15	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	20	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	23.5	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	24	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-3	2/26/2003	26	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	5	<10	<5.0	<10	<2.0	<5.0	16	<2.0
E-4	2/27/2003	10	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	15	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	20	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	25	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	26	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
E-4	2/27/2003	27	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	5	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	10	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	15	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	20	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0

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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)						
			Naphthalene	n-Propyl benzene	p-Cymene	Toluene	Vinyl Chloride	mp-Xylenes	o-Xylenes
MW-06	2/24/2003	25	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	28	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	29	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	35	28	<5.0	<10	230	44	200	52
MW-06	2/24/2003	40	17	<5.0	<10	260	130	150	60
MW-06	2/24/2003	44	<100	<50	<100	130	390	780	<20
MW-06	2/24/2003	50	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-06	2/24/2003	55	<10	<5.0	<10	2.0	<5.0	15	<2.0
MW-07	2/25/2003	5	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	10	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	15	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	20	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	25	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	27	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	30	12	<5.0	<10	36	83	17	3.9
MW-07	2/25/2003	35	18	<5.0	<10	510	97	190	49
MW-07	2/25/2003	40	22	<5.0	<10	190	300	120	24
MW-07	2/25/2003	45	28	<5.0	<10	6.5	46	64	11
MW-07	2/25/2003	46	<10	<5.0	<10	<2.0	16	15	<2.0
MW-07	2/25/2003	50	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	55	<10	<5.0	<10	<2.0	<5.0	<2.0	<2.0
MW-07	2/25/2003	60	<10	<5.0	<10	<2.0	<5.0	13	<2.0
MW-08s	9/22/2003	5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-08s	9/22/2003	10	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-08s	9/22/2003	15	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002

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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)						
			Naphthalene	n-Propyl benzene	p-Cymene	Toluene	Vinyl Chloride	mp-Xylenes	o-Xylenes
MW-08s	9/22/2003	20	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-08s	9/22/2003	26.5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-08s	9/22/2003	30	<0.01	<0.005	<0.01	0.0049	0.0072	<0.002	<0.002
MW-08s	9/22/2003	35	<0.01	<0.005	<0.01	0.066	0.033	0.046	0.0095
MW-09s	9/23/2003	5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	10	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	15	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	20	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	25	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	30	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-09s	9/23/2003	35	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	10	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	15	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	20	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	26.5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	30	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	35	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-10s	9/23/2003	39	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-11s	9/24/2003	5	<0.5	<0.25	<0.5	5.7	<0.25	1.7	<0.1
MW-11s	9/24/2003	10	0.07	<0.005	<0.01	0.057	<0.005	0.03	0.0084
MW-11s	9/24/2003	15	0.09	0.017	0.0068	0.0029	<0.005	0.038	0.015
MW-11s	9/24/2003	21	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-11s	9/24/2003	26	<20	<10	<20	190	<10	43	<4
MW-11s	9/24/2003	31	<0.1	<0.05	<0.1	0.78	<0.05	0.14	<0.02

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Location Name	Date Sampled	Sample Depth (ft bgs)	8260B (ug/kg)						
			Naphthalene	n-Propyl benzene	p-Cymene	Toluene	Vinyl Chloride	mp-Xylenes	o-Xylenes
MW-11s	9/24/2003	36.5	<1	<0.5	<1	2.7	<0.5	1.1	<0.2
MW-12s	9/23/2003	5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	10	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	15	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	20	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	27.5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	31.5	<0.01	<0.005	<0.01	<0.002	<0.005	<0.002	<0.002
MW-12s	9/23/2003	35.5	<0.01	<0.005	<0.01	<0.002	0.014	<0.002	<0.002

notes:

VOCs = Volatile Organic Compounds
(ug/kg) = micrograms per kilogram
ft bgs = feet below ground surface
PCE = Tetrachloroethene
TCE = Trichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
1,1,2-TCA = 1,1,2-Trichloroethane
1,1-DCA = 1,1-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
1,2-DCA = 1,2-Dichloroethane
1,2,4-TCB = 1,2,4-Trichlorobenzene
1,3,5-TCB = 1,3,5-Trichlorobenzene
Freon 11 = Trichlorofluoromethane
MEK = Methyl Ethyl Ketone
MIK = 4-methyl-2-Pentanone
Blank cells indicate sample not analyzed.

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